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Long Term Loans of Iowa Banks

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SUMMARY

1. In most Iowa banks, the deposits constitute from 70 to 85 percent of the total liabilities.

2. Of all their liabilities, the banks have the least control over their deposits. It has been chiefly withdrawals of deposits, consequently, that have put the banks in a position where ready cash was urgently needed.

3. The average extent of deposit withdrawals since 1914 has not been great. It has varied among the banking systems in close relation to the character of the deposits, being greatest where the deposits have consisted largely of demand and bank accounts and least where time and savings accounts have predominated.

4. The banks have been able to meet these average deposit withdrawals by moderately reducing their loans, cash resources and securities, and by borrowing small sums from other banks.

5. Occasionally, however, there have been extensive withdrawals of deposits. In supplying the funds needed at these times, the banks have not found it expedient to reduce their loans to any great extent. Instead, they have allowed their cash resources to be depleted and have borrowed heavily from other banks.

6. Even in the best of times the average term of bank loans has been nearly one year. The turnover of bank loans was most rapid from 1917 to 1920 and fell to a very low rate after 1920.

7. The experience of the period 1914 to 1927, inclusive, proves that Iowa banks have not needed to confine their loans to those of short maturities. In actual practice the banks have not so confined themselves, and the demands of depositors have been met by means of very small reductions in the loans.

8. Since the proportion of time deposits in Iowa banks has been rising rapidly since 1920, and time accounts have been subject to withdrawals of less extent than the other type of deposits, Iowa banks in the future should be able to have their loans of even longer average maturities than was feasible before the war.

Long Term Loans of Iowa Banks

By Fred L. Garlock

The opinion is widely held that commercial banks should make only short term loans as distinguished from long term or capital loans. Just what constitutes a short term loan is not susceptible of precise definition, but, in general, loans that are made to finance current production or that are payable within the period set by the productive cycle of any community fall within this category. The productive periods or cycles are not the same in all areas. Consequently, loans made with maturities of nine months may be regarded as short term loans in one locality and long term loans in another. In the rural districts of Iowa, loans having maturities of one year or less usually are regarded as short term loans, while those having longer maturities are considered to be long term loans.

Bankers seldom classify their loans in this manner. On the contrary, if called upon for a time classification of loans they are likely to list their notes according as the maturities are less than 30 days, from 31 to 90 days, from 91 days to six months, etc., using definite time intervals but not attempting to draw a hard and fast line between long and short term loans. It is a further practice of bankers when the borrowers need funds for a considerable period of time and are not required to give real estate mortgages, to make out the notes with maturities of six months regardless of the dates when the notes can be liquidated. Thus, many loans are frequently renewed and, while they would be classified as six months' maturities by the bankers, actually they are long term loans running for several years before being paid. Notes secured by real estate mortgages usually are given maturities of one year or more.

Those who object to the making of long term loans by banks usually base their opposition on one or more of three contentions. First, the long term loans are held to possess a lower earning capacity than short term loans. Second, the proportion of loss on the long term loans is thought to be greater than that on the short term loans. And, third, it is held that banks are institutions having demand liabilities and that they can not safely "tie up" their funds for long periods of time. Consequently, it is contended, the banks should have only short term loans so that their funds will be quickly available when needed.

By far the larger part of farmers' credit requirements is of the long term character. If the banks should confine themselves to short term loans their usefulness as agricultural credit institutions would be narrowly restricted. It is of vital concern to farmers, therefore, whether the banks may or may not properly enter the field of long term credit.

Each of the objections to the making of long term loans by banks merits separate consideration, but to analyze all three would exceed the limits set for the present study. The purpose of this bulletin is to examine the validity of the third contention as a working rule for Iowa banks. So far as available data permit, the question of whether Iowa banks need to confine themselves to short term loans in order to meet the demands of their creditors will be analyzed. The method of procedure includes:

1. An analysis of the liabilities of Iowa banks in order to determine the relative importance of their demand liabilities.
2. An examination of the measures adopted by banks in meeting demands for payment in order to determine how important loan collections have been as a source of funds.
3. The presentation of such data as are available bearing on the term of credits which have been extended by Iowa banks.

Data for the study were obtained from the published reports of the supervisory officials, some unpublished data in the office of the State Superintendent of Banking, and the records of 20 banks which opened their books for the author's inspection.

I. CHARACTER OF THE LIABILITIES

One of the distinctive characteristics of banks is that they deal chiefly in credit. The capital invested by the stockholders or owners usually is small in comparision to the debts. Failure to meet their debts when due or when payment is demanded often has even more drastic consequences to a bank than to an individual. It is important therefore, to ascertain what obligations are placed upon the banks by their indebtedness.

The liabilities of a commercial bank may be grouped conveniently in the following manner.

1. The capital fund.
2. Indebtedness on circulating notes or currency.
3. Indebtedness to other banks which have funds on deposit and to the holders of certified and cashiers' checks, unpaid dividends, and bank drafts.
4. Indebtedness on individual deposits subject to check.
5. Indebtedness on time and savings deposits.
6. Indebtedness on government deposits.

7. Indebtedness to other banks represented by rediscounts and bills payable.
8. Miscellaneous other forms of indebtedness.

THE CAPITAL FUND

This term as herein used refers to the capital stock, surplus, undivided profits and reserves for various contingencies as shown by the books of the banks. It does not refer to the total amount of money which, from time to time, may have been invested by the stockholders; nor does it always precisely measure the equity of the stockholders in the assets of the banks. Failure to charge off losses often causes this item to exceed the actual equity of the owners, and the occasional existence of concealed assets sometimes causes it to understate the equity of the stockholders. In times of fairly stable business conditions, however, it is likely to approximate the actual equity of the stockholders.

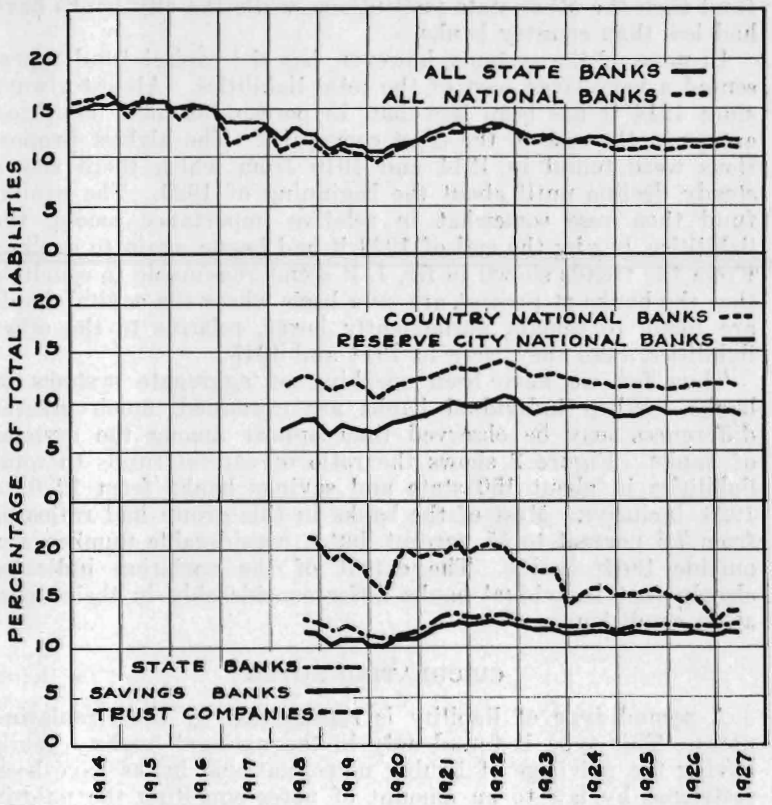

Fig. 1. Relation of capital funds to total liabilities.

Figure 1 shows the proportions of the total liabilities represented by the capital fund in the state and national banks of Iowa from 1914 to 1927, inclusive. National banks are divided into two groups, the reserve city national banks and the country national banks. The first group includes all national banks in the four cities, Des Moines, Sioux City, Cedar Rapids and Dubuque. All other national banks of the state are called country national banks. The state system of banking includes three types of institutions, state banks, savings banks and trust companies.

Reference to fig. 1 shows that the capital funds of the state banks and the national banks in Iowa have been of just about the same importance in the total liabilities of the two systems. There was practical identity in the relative importance of the capital funds of the state banks and savings banks. Trust companies, however, usually have had a greater relative capital fund than the other state institutions, while the city banks have had less than country banks.

In none of the systems, however, has the capital fund represented a very large part of the total liabilities. Almost always since 1914 it has been less than 15 percent of total liabilities, except in the case of the trust companies. The highest proportions were found in 1914 and 1915 from which there was a steady decline until about the beginning of 1920. The capital fund then rose somewhat in relative importance among the liabilities, but by the end of 1923 it had begun again to decline. From the trends shown in fig. 1, it seems reasonable to conclude that the banks at present are on a basis where the capital funds are likely to remain permanently lower, relative to the other liabilities, than they were in 1914 and 1915.

Thus far we have been speaking of aggregate systems of banks. When individual banks are examined, much greater differences may be observed than appear among the systems of banks. Figure 2 shows the ratio of capital funds to total liabilities in about 150 state and savings banks from 1920 to 1923, inclusive. Most of the banks in this group had ratios of from 7.5 percent to 15 percent, but a considerable number was outside these limits. The extent of the variation indicates clearly that individual banks differ considerably in their operating conditions.

CIRCULATING NOTES

A second type of liability is represented by the circulating notes. This type is found only in the national banks. While having the privilege of issuing notes, national banks have been restricted by law to an amount of notes equalling the paid-in capital of the banks. This restriction, for one thing, has made

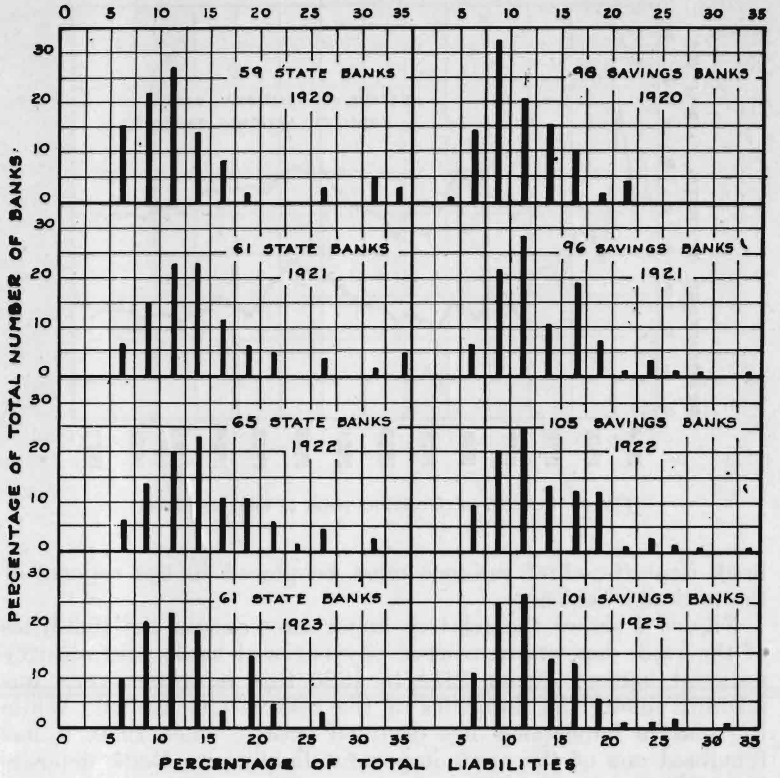

Fig. 2. Distribution of Iowa banks according to the relation of capital funds to total liabilities.

the circulating notes relatively unimportant among the liabilities. And since 1914 the need for currency in the country has been amply satisfied by the issue of Federal Reserve notes and gold certificates so that there has been a declining need for the issue of national bank notes. Consequently, as shown in fig. 3, we find that the relative importance of the circulating notes issued by Iowa banks has been much less in recent years than formerly.

BANK DEPOSITS

A third type of liability is represented by the item "bank deposits", sometimes called "due to banks and bankers." This account, as here used, includes the accounts owing to banks on demand, dividends unpaid, demand certificates, cashiers' checks and certified checks. Unfortunately the state chartered banks have supplied information from which this item could be computed on only two occasions; hence, for information concerning

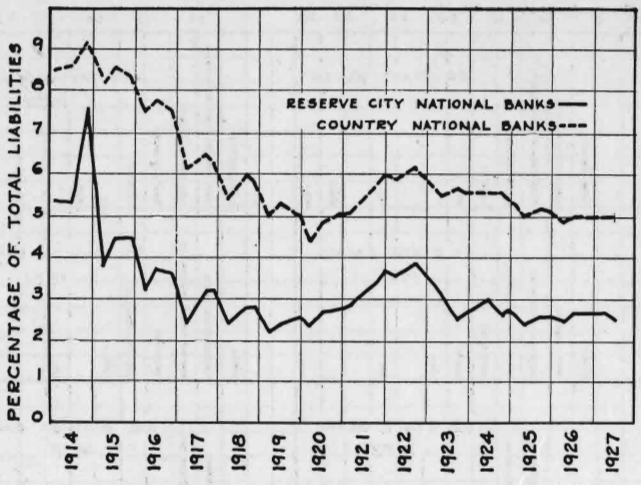

Fig. 3. Relation of circulating notes to total liabilities.

bank deposits, chief reliance must be placed in the reports of the national banks.

Figure 4 shows the relative importance among the liabilities of the bank deposits in reserve city national banks and country national banks. From 1914 to 1920 this item was very important among the liabilities of the reserve city banks. While its relative importance has declined greatly since 1920, it has remained one of the more important liabilities. Bank deposits have not constituted a large proportion of the liabilities of the country banks.

The greater importance of bank deposits in the reserve city banks may be ascribed to the common practice of using the banks in important commercial centers as reserve depositories. Small institutions have carried the greater portion of their cash resources in the banks of larger cities, cleared and collected

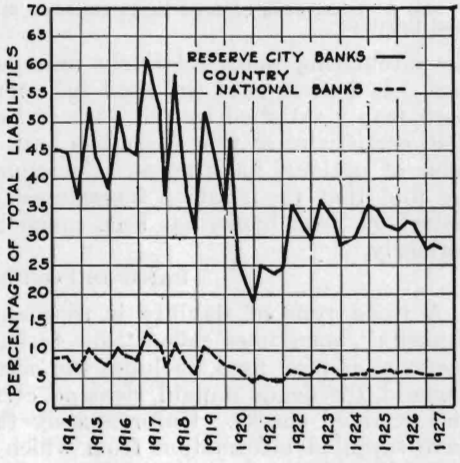

Fig. 4. Relation of bank deposits to total liabilities.

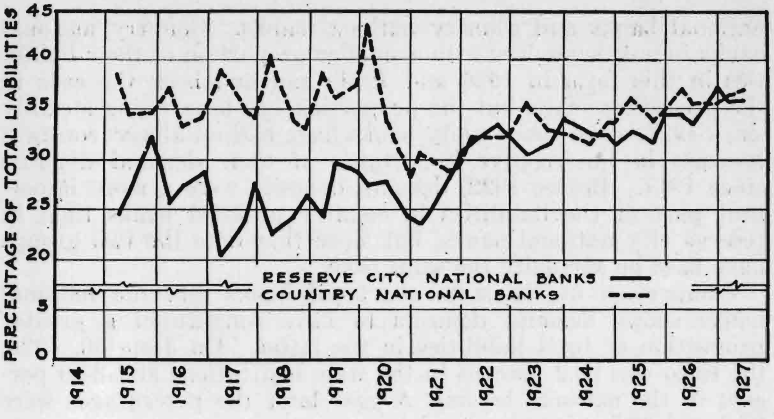

Fig. 5. Relation of demand deposits to total liabilities.

checks in these banks and drawn upon them for exchange. While many of the country banks have acted as reserve depositories for other banks, taken as a group the country banks have secured far less of this business than have the reserve city banks.

The deline in the importance of bank deposits in the reserve city banks in recent years probably is due to the Federal Reserve system. Before the Federal Reserve system was established, city banks had almost a complete monopoly of the reserve depository business. Since the Federal Reserve system has been established and has become an important element of our banking system, it has taken over a considerable portion of this business.

Comparison of the relative importance of bank deposits in national banks and the state institutions is possible at only two dates. On June 30, 1926, the entire state chartered system of banks had only 2.8 percent of its liabilities in this form while in the entire group of national banks the proportion was 14.1 percent. A year later the proportions were 2.3 percent and 13.2 percent, respectively. Most of the individual banks whose records were studied had so low a percentage of their liabilities in this form that it was not thought worth while to carry the bank deposits as a separate item. From these data it seems well established that the reserve depository business has been of much greater importance in national banks than in state institutions.

DEMAND DEPOSITS

A fourth group of liabilities has been taken to include only the individual accounts subject to check and is designated "demand deposits." As shown in fig. 5, demand deposits have been an important element in the business of both reserve city

national banks and country national banks. Country national banks found themselves with a smaller proportion of their liabilities in this form in 1920 and 1921 than had been the case in the preceding years, but the proportion has been rising steadily since 1921. The reserve city banks have had an almost constant increase in the relative importance of their demand deposits since 1917. Before 1922, demand deposits were a more important part of the liabilities in country national banks than in reserve city national banks, but since that date the two groups have been on virtually the same basis.

Comparison of the state chartered banks and the national banks shows demand deposits to have constituted a greater proportion of total liabilities in the latter. On June 30, 1926, the ratio was 26.2 percent in the state institutions and 34.9 percent in the national banks. A year later the percentages were 27.3 and 36.5, respectively.

Figure 6 shows the relative importance of demand deposits

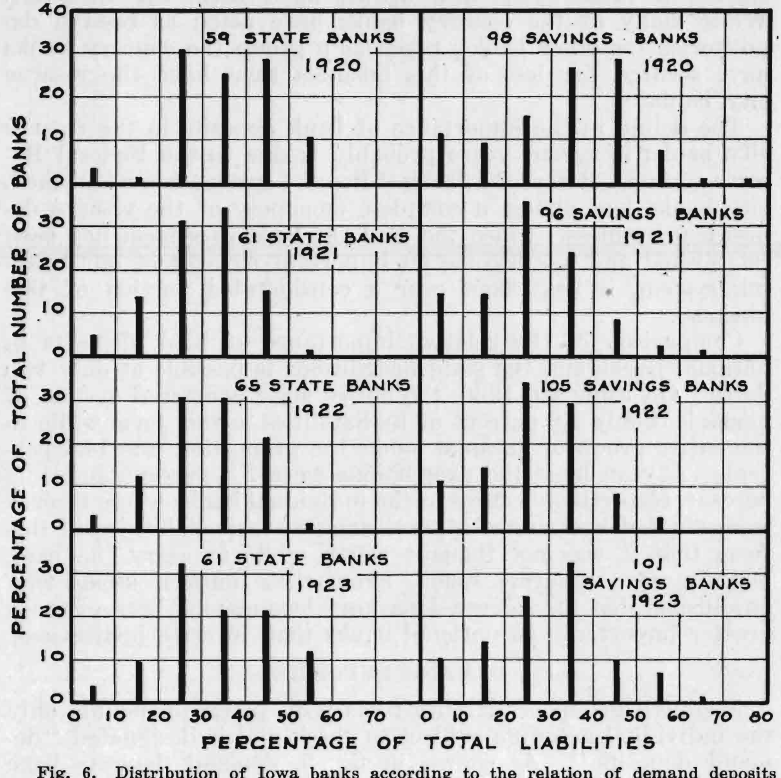

Fig. 6. Distribution of Iowa banks according to the relation of demand deposits to total liabilities.

in the individual state and savings banks. In most of the banks the demand deposits have represented from 20 to 40 percent of the total liabilities. State banks seem to have had somewhat higher proportions of demand deposits than savings banks. It should be observed, also, that a greater proportion of the savings banks had virtually no demand deposits at all than was true of the state banks. Such banks ordinarily have been operated in affiliation with other banks which specialized in the commercial accounts.

TIME DEPOSITS

A fifth group of liabilities is designated "time deposits," and it has been taken to include the ordinary savings accounts, postal savings accounts and time certificates of deposit. In the national banks, for purposes of computing legal reserve requirements, time accounts have been defined as those which are not subject to withdrawal in less than 30 days.[1] Under the state banking laws, banks may require 60 days written notice before paying savings depositors.[2] Time certificates of deposit bear on their faces the dates at which they become payable. These, however, are merely legal distinctions. There is nothing to prevent the payment on request of either savings deposits or time certificates ,and, in fact, it has been the practice to pay them on demand.

Figure 7 shows the relative importance of the time deposits among the liabilities of reserve city national banks and country

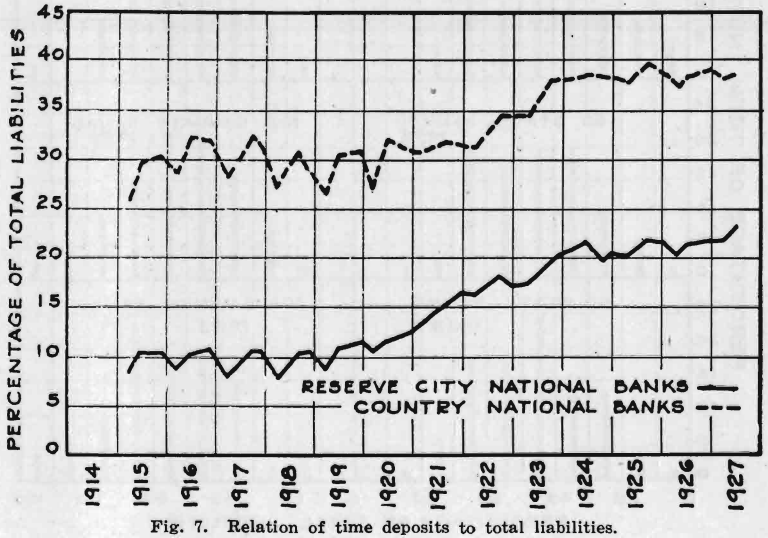

Fig. 7. Relation of time deposits to total liabilities.

[1]National Banking Laws, Section 24.
[2]Iowa Banking Laws, Sections 9179 and 9304.

national banks. From 1914 to 1920 the time deposits were about 30 percent of the total liabilities in the country national banks and about 10 percent of the total liabilities in the reserve city banks. Beginning in 1920, however, these proportions rapidly grew larger until in 1927 about 38 percent of the country banks' liabilities consisted of time deposits and in the reserve city banks time deposits had doubled their relative importance.

As was true of the bank and the demand deposits, it is possible to compare the national and state systems of banks on only two dates. On June 30, 1926, time deposits represented 57.7 percent of the total liabilities of the state institutions. The proportion in the national banks on that date was only 33.6 percent. A year later the ratios were 57.5 percent and 33.8

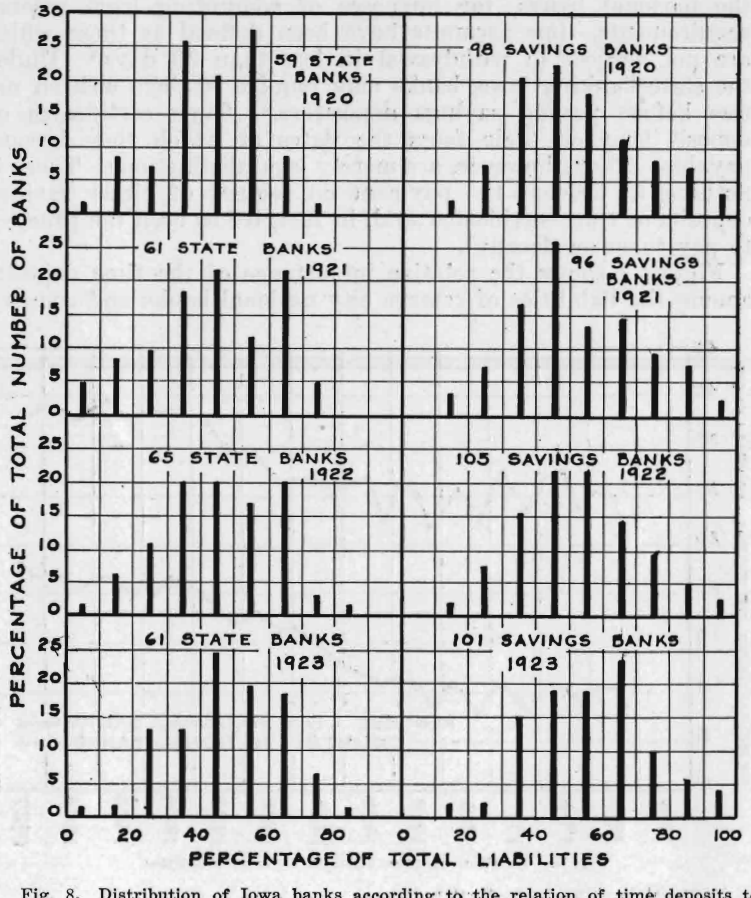

Fig. 8. Distribution of Iowa banks according to the relation of time deposits to total liabilities.

TABLE I. PROPORTION OF BANKS HAVING 40 PERCENT OR MORE OF TOTAL LIABILITIES IN TIME DEPOSITS

Year	Percentage state banks	Percentage savings banks
1920	57.8	70.5
1921	59.0	73.1
1922	61.4	75.3
1923	70.6	81.1

percent, respectively. From these proportions one would conclude that time deposits have been a much more important element of the business of state institutions than of national banks. Figure 8 shows the relative proportions of the time deposits in individual state and savings banks. Most of both the state banks and savings banks had time deposits which were from 30 to 70 percent of their total liabilities. More state banks had less than 30 percent of their liabilities in this form than savings banks, and more savings banks had over 70 percent of their liabilities in time deposits than state banks. Otherwise the state banks and savings banks seemed to be on about the same plane.

Examination of the yearly changes shown in fig. 8 reveals a development similar to that shown by the national banks. This is brought out more clearly in table I, which has been prepared from the data used in fig. 8.

The increase of the relative importance of time deposits in both the state and national systems of banks suggests that a fundamental change has been taking place in the character of Iowa banking. As will be seen later, the time deposits are a comparatively sluggish fund, not being subject to extensive withdrawals. The funds represented by time deposits, therefore, may safely be invested for considerable periods of time. It appears, consequently, that Iowa banks are assuming more and more of an investment character.

UNITED STATES GOVERNMENT DEPOSITS

A sixth form of liability is represented by the United States government deposits. Only the national banks have published data showing the amounts of these liabilities. As will be noted in fig. 9, the United States government deposits have been an exceedingly small part of the total liabilities in both the country and reserve city national banks. It also is clear that these deposits have constituted an exceedingly variable item of business.

TOTAL DEPOSITS

Taken in the aggregate the deposit accounts include by far the greater part of the total liabilities. The state system of banks, as shown in fig. 10, has had thruout the period, 1914 to 1927, a slightly higher proportion of its liabilities in the form of deposits than the national system. In the reserve city banks

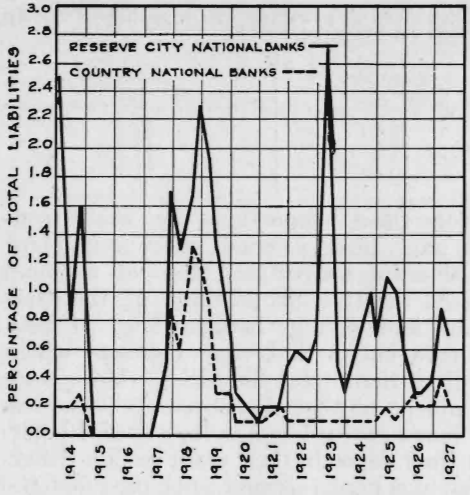

Fig. 9. Relation of United States government deposits to total liabilities.

the proportion has been higher generally than in the country banks, and in the savings bank it has been slightly higher than in the state banks. Trust companies have had the lowest proportion of all. Considering the whole period, 1914 to 1927, it would appear that except for a temporary depression from 1920 to 1923, the proportion has been subject to very little change.

National banks have had a lower proportion of their liabilities in the form of deposits than state institutions chiefly because they have an additional form of liability not permitted to the state institutions. This additional form, as has been seen, is the liability on account of note issue. The credit conferred by the public upon banks is represented almost entirely by the note issue and the deposits. When these two items are combined in the national banks and compared with the deposits of the state institutions, as has been done in fig. 11, little difference is seen between the two systems.

The proportion of the total deposits to total liabilities in individual state and savings banks is shown in fig. 12. In most of the state and savings banks, the total deposits have been at least 70 percent of the liabilities. The most common class intervals, as shown by this figure, are from 80 to 84.9 percent and 85.0 to 89.9 percent. A considerable number of banks had time deposits which were more than 90 percent of their total liabilities. Yet it is clear that individual banks have varied greatly in this feature of their organization.

BILLS PAYABLE AND REDISCOUNTS

Seventh among the main groups of liabilities is that which bankers usually regard as representing borrowed money. It includes two items, the bills payable and the rediscounts, both representing liabilities incurred on account of funds received from other financial institutions. The bills payable refer to the liabilities of a bank on its own promissory instruments, which usually are notes but sometimes take the form of repurchase agreements.

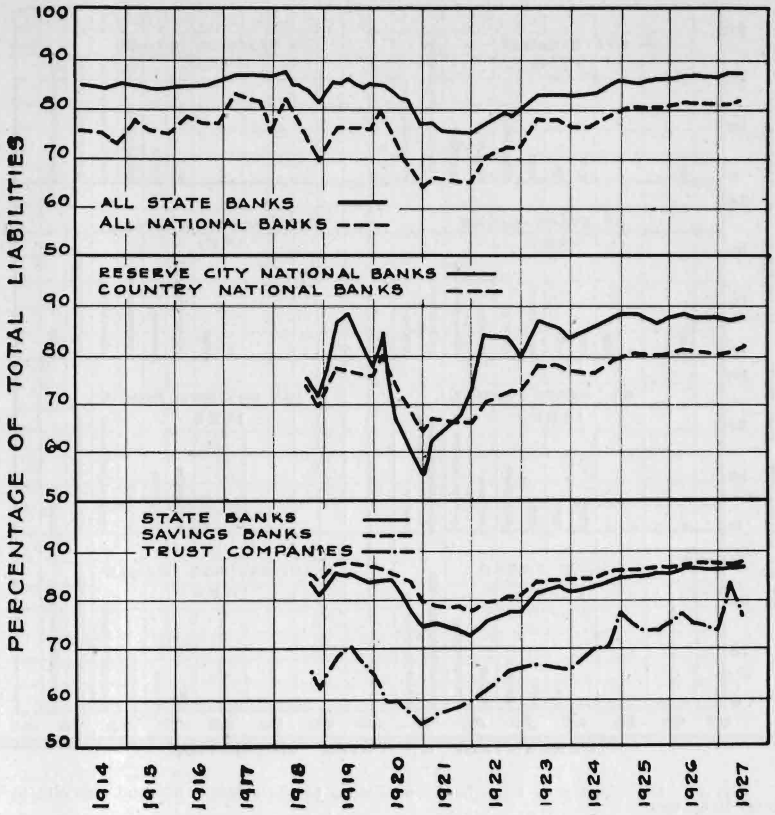

Fig. 10. Relation of total deposits to total liabilities.

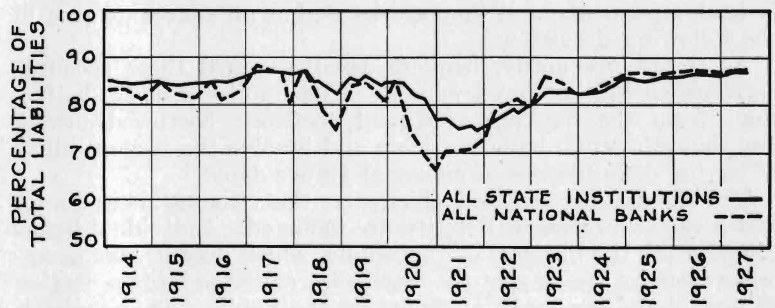

Fig. 11. Relation of total deposits in state institutions and total deposits and circulating notes combined in national banks to total liabilities.

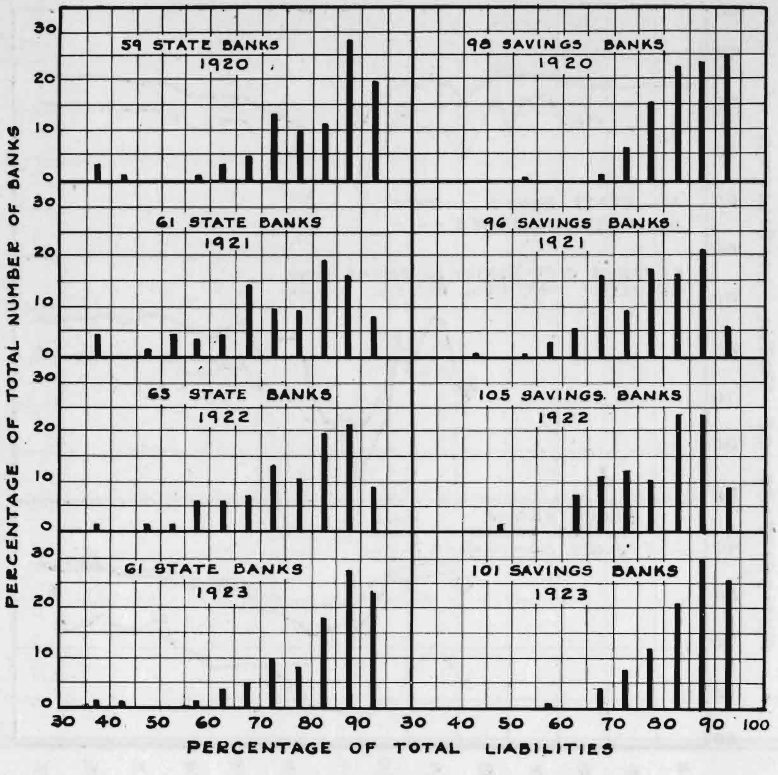

Fig. 12. Distribution of Iowa banks according to the relation of total deposits to total liabilities.

Rediscounts, on the other hand, refer to the bank's liability as endorser on its own customers' paper, which has been discounted at other banks. These two forms of liability often are combined in bank statements, and they are treated as an aggregate sum in the following discussion.

As stated previously, bankers usually regard these accounts as representing borrowed money. This implies a clear distinction, from the banking viewpoint, between borrowed money and deposits, altho both are debts and involve the responsibility of paying definite sums of money at future dates.

The distinction is based chiefly on the circumstances under which the two forms of liability are incurred. Individual banks compete for the business of the public, which may be put in another form by saying that they strive to receive as large a portion as possible of the credit extended by the public. This credit is represented chiefly by the deposit liabilities, hence the deposits are regarded by most bankers as the regulator of the volume of

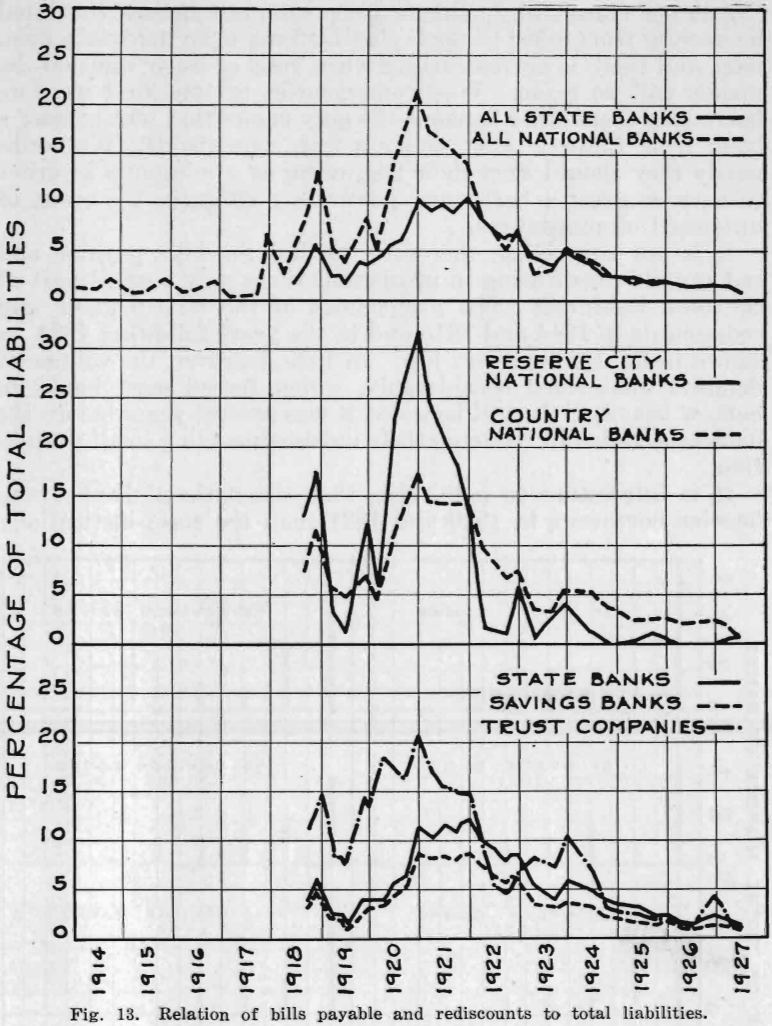

Fig. 13. Relation of bills payable and rediscounts to total liabilities.

lending that should be done. Borrowing from other banks, on the contrary, usually occurs when a bank has lent or invested amounts in excess of those which the deposits of its customers will sustain. A bank that finds itself in this position usually has to borrow from other banks which have kept within the limits set by their deposits. The bills payable and rediscounts, therefore, often are taken to indicate that a bank has exceeded its legitimate volume of lending.

Another reason why bankers are prejudiced against continual borrowing from other banks is that banking is an uncertain business, and there is no forecasting when runs or other unusual demands will be made. When emergencies of this kind develop, borrowing from other banks is the only resort that will protect a bank from failure. Most bankers feel, consequently, that ordinarily they should keep their borrowing at a minimum in order to have as great a borrowing power as possible in the event of untoward circumstances.

It is not surprising, therefore, to find the bills payable and rediscounts constituting in prosperous times only a small part of the total liabilities. The proportions of the bills payable and rediscounts in 1914 and 1915 and in the years following 1924, as shown in fig. 13, were very low. In 1920, however, the volume of deposits diminished considerably, which forced most banks to borrow heavily. As will be noted it was several years before the banks succeeded in reducing their indebtedness to a small proportion.

It is interesting to note, also, that the national banks were heavier borrowers in 1920 and 1921 than the state institutions,

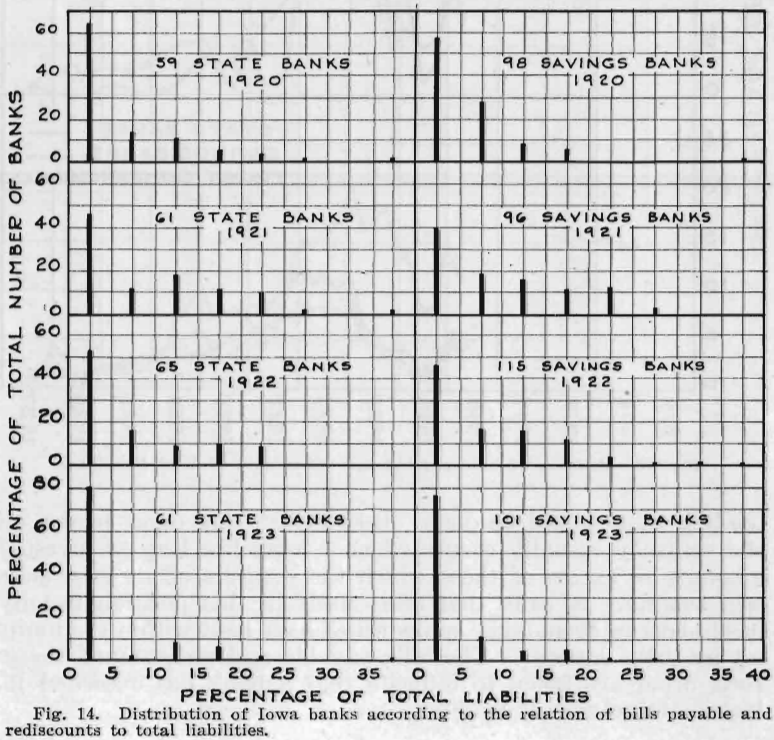

Fig. 14. Distribution of Iowa banks according to the relation of bills payable and rediscounts to total liabilities.

and that the reserve city banks borrowed more heavily than the country banks. Later it will be shown that the heaviest borrowing occurred by the banks which lost the largest amounts of their deposits. At this point, however, it is well to bring out that as very few state institutions had connections with the Federal Reserve system the chief responsibility for getting funds into the state in 1920 and 1921 devolved upon the national banks. Since the reserve city banks had most of the reserve depository business, their exceedingly great volume of borrowing from other banks doubtless reflects the service they rendered in relaying funds from the Federal Reserve system to their country correspondents.

The figures on individual state and savings banks presented in fig. 14 likewise show the tendency to minimize borrowing from other banks. More than half of the state and savings banks had bills payable and rediscounts which averaged over the period, 1920 to 1923, inclusive, less than 5 percent of their total liabilities. This figure indicates 1921 as the year of heaviest borrowing, and the gradual liquidation of these debts is reflected by the growing number of banks that had bills payable and rediscounts in the later years of less than 5 percent of their liabilities.

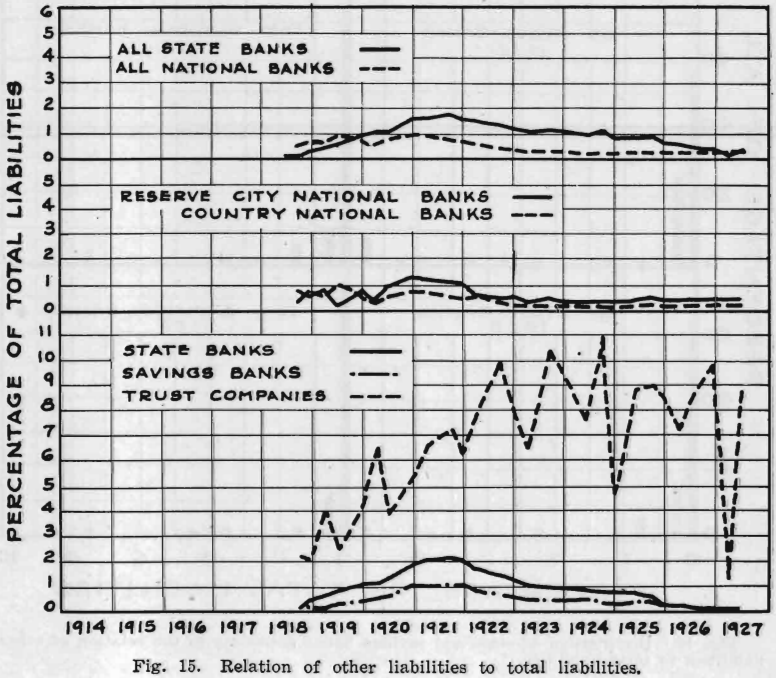

Fig. 15. Relation of other liabilities to total liabilities.

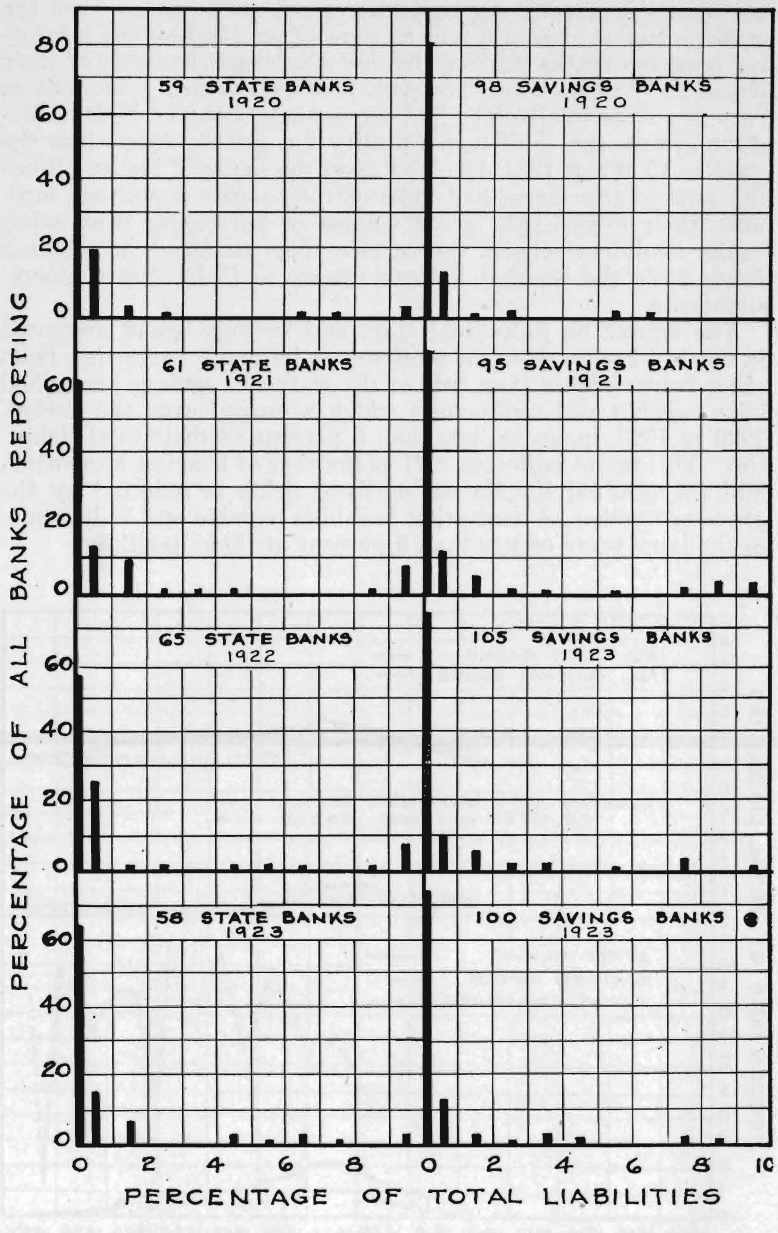

Fig. 16. Distribution of state and savings banks according to the relation of other liabilities to total liabilities.

OTHER LIABILITIES

The most important of the liabilities have now been discussed. Many banks, however, carry a miscellany of other accounts that may be grouped together and conveniently considered under the head, "other liabilities." This group includes liabilities on account of bonds borrowed, repurchase agreements, acceptances outstanding, letters of credit, supplies purchased on account and funds left by customers for certain special purposes. In brief, as the term here is used, it refers to all of the liabilities not previously discussed. As shown in fig. 15, these items have constituted only a small part of the total liabilities of the various systems of banks in Iowa, save the trust companies. In the latter, transactions incident to the negotiation of real estate mortgages and the transmission of interest payments thereon and comparatively large indebtedness on account of bonds borrowed, have made this item quite important. But as may be seen in fig. 16, most of the individual state and savings banks studied had no "other liabilities."

SUMMARY

As a convenient means of comparing the capital structures of the various banking systems, table II has been prepared to show the relative importance of the liabilities on June 30, 1926. Judging by the statements of the reserve city and country national banks, the condition of the banks on June 30, 1926, was quite typical of the conditions prevailing during the past four years. It is impossible to compare the itemized deposit accounts of the state banks as they appeared on June 30, 1926, with their positions in previous years for the reason that the deposit accounts were not itemized prior to 1926.

It is at once apparent from table II that the relative importance of the respective groups of liabilities in the various systems of banks has not been the same. The reserve city banks almost always have had debts that were greater in relation to their capital funds than have the other types of banks. Bank and demand accounts have been the chief types of deposits in reserve city

TABLE II. COMPARATIVE STATEMENTS OF STATE CHARTERED INSTITUTIONS AND NATIONAL BANKS JUNE 30, 1926

Type of Liability	Percentage all state chartered banks	Percentage all national banks	Percentage country national banks	Percentage reserve city national banks
Capital fund	11.7	11.1	11.9	9.1
Circulating notes	——	4.3	5.0	2.7
Bank deposits	3.2	14.1	6.3	32.6
Demand deposits	26.2	34.9	35.5	33.5
Time deposits	57.7*	33.6	38.7	21.4
U. S. government deposits	——**	.2	.2	.3
Bills payable and rediscounts	.7	1.5	2.1	——
Other liabilities	.5	.3	.2	.4

*Includes small amount of debentures issued by trust companies.
**Not shown by reports.

banks, but the state institutions have had chiefly time and savings accounts. In the country national banks, the bank and demand accounts have been but little larger than the savings accounts.

Among the individual banks much greater differences have been observed than have appeared among the banking systems. The debts have varied from 18 or 19 times the capital funds to only about half the capital funds. The deposits of a few banks have consisted entirely of time and savings accounts, whereas in others they have consisted almost entirely of demand accounts. And altho the figures have shown a marked tendency for certain relationships among the accounts to be more common than others, there has been such wide dispersion of cases as to leave doubt whether any one capital structure may be regarded as typical.

It has also been noted that in the banking systems the various types of liabilities have varied greatly from one time to another in the period studied. In recent years the debts have become greater in proportion to the capital funds than was common in the early years of the period. The feature development, however, has been the relative growth of time and savings deposits. This development was not perceptible in the early years of the period, but it began in 1920 and has continued unabated to the present time. Iowa banks have steadily been losing their status as commercial institutions and have become more and more banks of an investment character.

II. VARIATION IN THE DEPOSITS

The preceding section showed that the deposits constitute the greater part of the liabilities of most banks. To the description given, it may be added that banks have a varying degree of control over the volume of their respective liabilities. When the capital fund is materially increased or decreased, for instance, it usually is the result of deliberate action by the board of directors. The volume of deposits, however, is dependent on the whims, the wealth and the prosperity of a bank's customers. In a very remote sense it is true that banks have some control over these factors, but to a much greater extent these factors govern the banks. Changes in the bills payable and rediscounts are in the first instance the result of voluntary action by bankers, but this action is caused usually by changes in the deposits or the demands of borrowers, neither of which can be closely controlled.

Changes in the deposits are the key to much of banking policy. Not only are the deposits the chief form of liability, but they are the least subject to control. When the deposits increase, bankers usually find themselves in an easier position with more abundant cash reserve and greater lending power. Decreases in the deposits, on the other hand, reduce the cash reserves, curtail lending power and necessitate borrowing from other banks.

There is another connection also between changes in the deposits and the condition of banks. Some changes in deposits—those resulting from the mere whim of depositors causing them to change their business from one bank to another, or to refuse to do business at all with banks—do not come within this purview. But when changes in the deposits of a bank result from the altered prosperity of its customers, the loan situation is affected in a double manner. Increases in deposits, reflecting greater prosperity of the customers, not only expand the lending power of a bank but also enhance the security of its loans. Decreases, on the contrary, not only call for reduction in the volume of loans but also make loan collections more difficult. It is often possible, therefore, to judge the solvency of banks by the changes that have occurred in their deposits.

Because of the importance of deposit changes in determining banking policies and reflecting banking conditions, it is well to study the changes to which Iowa banks have been subject. Later we shall see how the banks have adjusted themselves to these changes. It has not been feasible to study the deposit trends of a large number of individual banks. This study, therefore, has made use of the aggregate data reported by the main systems of banks in the state. Figures on the trust companies have been disregarded because the business of these companies has not been closely comparable with that of the other groups of banks.

YEAR TO YEAR CHANGES IN AVERAGE DEPOSITS

For the purposes of this study it has been thought best to analyze the changes in average deposits from year to year and the changes in actual deposits during such shorter periods as available data will permit. First to be discussed are changes in average deposits from year to year. These changes reflect the secular and cyclical trends of deposits. To obtain measures of the year to year changes, the average of the deposits for any given calendar year has been divided by the average of deposits during the preceding calendar year. Deviations have been computed by subtracting 100 percent from these quotients. Thus a deviation of +10 percent in total deposits means that in the current calendar year the total deposits have averaged 10 percent greater than in the preceding year.

Average Changes in Average Total Deposits

Table III shows the average percentage changes taking place in the deposits of the main groups of national banks and state institutions during the two periods 1919 to 1927, inclusive, and 1915 to 1927, inclusive. The shorter period, 1919 to 1927, has been included because prior to the middle of 1918 no separate figures on the deposits of state banks were published. In both periods, it will be noted, the average percentage changes from year to year were greatest in the reserve city national banks and

TABLE III. AVERAGE YEAR TO YEAR CHANGES IN TOTAL DEPOSITS
(Deviations averaged without regard to sign)

	Percentage 1919 to 1927 inclusive	Percentage 1915 to 1927 inclusive
Reserve city national banks	9.0	12.2
Country national banks	7.0	9.7
State banks	6.9	—
Savings banks	5.0	—
All state chartered banks	5.8	9.3

lowest in the state chartered banks. Country banks occupied a position between these two groups. Examining the period, 1919 to 1927, it appears that the changes in the state banks were greater than those in the savings banks.

Average Changes in Various Types of Deposits

When the average changes occurring in the different types of deposits are studied, a reason is found for the order of variability among the banking systems. Table IV shows the average changes from year to year in the various types of deposits. Since the state institutions have not published consecutive classifications of their deposits, this analysis is restricted to the reserve city national banks and the country national banks. Here it will be noted that United States government deposits have been subject to extreme changes, whereas the individual deposits, including time and demand accounts, have had the lowest degree of variability. Bank deposits have been subject to much greater change than the individual deposits, but fall far short of equalling the extreme variability of government deposits.

It will be recalled from the preceding section that the reserve city banks had a much larger proportion of their deposits in the form of government and bank accounts than the country national banks or the state institutions. Similarly the country national banks had a higher proportion of these accounts than the state institutions. It would seem to be a natural inference, therefore, that the character of the deposits determines, to a large extent, the magnitude of the changes taking place in total deposits. Thus the reserve city banks, which had the largest proportions of the more active accounts, were subject to greater changes in their

TABLE IV. AVERAGE YEAR TO YEAR CHANGES, IN VARIOUS TYPES OF DEPOSITS, 1915 TO 1927 INCLUSIVE
(Deviations averaged without regard to sign)

	Percentage reserve city national banks	Percentage country national banks
United States government deposits	64.1	49.3
Bank deposits	17.3	18.5
Demand deposits	10.7	10.4
Time deposits	12.7	9.5
Total deposits	12.2	9.7

total deposits than were the country national banks or state institutions which had larger proportions of the more inactive accounts.

Average Positive and Negative Changes in Deposits

To get a more accurate picture of these changes, however, it is necessary to differentiate between the average positive and negative changes from year to year. Positive changes or increases, it will be recalled, have made the position of bankers easier, whereas negative changes or decreases have sometimes been a source of difficulty.

Table V shows the average positive and negative changes in the various types of deposits of reserve city and country national banks. Since the government deposits are of such small amount, they have been omitted from this classification. Both groups of banks show that the average positive changes or increases have been greater than the average negative changes in the bank accounts and the time accounts. The demand accounts, however, have been subject to greater average negative changes. The result of these conflicting tendencies has been that the total deposits of both groups have had average positive changes that were greater than the average negative changes. This is likewise true of the total deposits of the state institutions

Number of Negative Changes in Average Deposits

Not only have the deposits in the aggregate had greater average positive than negative changes, but the number of times there have been increases is considerably greater than the number of decreases. This is shown in table VI. The reserve city banks have been most favored with increases. Out of the 12 year-to-year changes studied, bank deposits increased seven times and demand deposits and time deposits eleven times, giving the total deposits increases in nine out of the twelve times. The country banks have not been quite so fortunate, their total deposits increasing only eight of the twelve times. The state chartered institutions were still less fortunate, having increases only seven of the twelve times.

Combining the figures in tables V and VI, it will be observed

TABLE V AVERAGE POSITIVE AND NEGATIVE CHANGES IN VARIOUS TYPES OF DEPOSITS FROM YEAR TO YEAR, 1915 TO 1927, INCLUSIVE

	Reserve city national banks		Country national banks	
	Percentage average positive changes	Percentage average negative changes	Percentage average positive changes	Percentage average negative changes
Bank deposits	17.8	16.6	22.3	15.8
Demand deposits	10.1	17.7	10.3	10.5
Time deposits	13.7	2.1	11.2	6.2
Total deposits	12.4	11.7	10.2	8.7

TABLE VI. NUMBER OF POSITIVE AND NEGATIVE CHANGES IN VARIOUS TYPES OF DEPOSITS FROM YEAR TO YEAR, 1915 TO 1927, INCLUSIVE

	Reserve city national banks		Country national banks	
	Number of positive changes	Number of negative changes	Number of positive changes	Number of negative changes
Bank deposits	7	5	5	7
Demand deposits	11	1	8	4
Time deposits	11	1	8	4
otal deposits	9	3	8	4

that in the reserve city banks time deposits decreased on only one occasion, that decrease being only 2.1 percent. The time deposits of the country national banks fell off during only four years, the average decrease being 6.2 percent. A comparison of these figures with similar ones on the demand and bank accounts, shows clearly that the time accounts have caused but little difficulty to the banks. Decreases in the bank accounts and demand accounts have been the chief cause of the banks' liquidation of their loans and borrowing from other institutions.

Greatest Single Negative Changes in Average Deposits

Taking up specific instances, the greatest single decreases in the various types of deposits are shown in table VII. In the reserve city banks, the average bank accounts on one occasion, that is, in one period of one year, fell off nearly 37 percent. The greatest single decrease of the demand deposits was about 18 percent, but the time deposits on the one occasion of their decrease changed only 2.1 percent. The greatest single decrease in the total deposits of the reserve city banks was 22.4 percent. Turning to the country banks, the greatest single decrease of the bank deposits was 38.5 percent, while that of the demand deposits was 29 percent. Time accounts here also showed a much smaller maximum decrease, only 10.1 percent. The total deposits of country banks had a maximum decrease of 22.1 percent. In the state institutions, the total deposits had a maximum decrease of only 16.4 percent, it being smaller than in the national banks presumably because the state institutions have had a larger proportion of time deposits.

TABLE VII GREATEST SINGLE DECREASE FROM YEAR TO YEAR IN VARIOUS TYPES OF DEPOSITS, 1915 TO 1927, INCLUSIVE

	Percentage reserve city national banks	Percentage country national banks
Bank deposits	36.9	38.5
Demand deposits	17.7	29.0
Time deposits	2.1	10.1
Total deposits	22.4	22.1

Comparison of Changes in Deposits Before and After January 1, 1922

During the war and immediate post-war years the average changes taking place in the deposits of the banks were far greater than those which have since prevailed. This is demonstrated in table VIII where the two periods, 1915 to 1921, inclusive, and 1922 to 1927, inclusive, are compared. Every type of deposit showed much greater changes in the earlier period, making much greater changes in the total deposits. It is worthy of special emphasis that since 1921 the total deposits of even the reserve city banks have been subject to very small average changes.

TABLE VIII. COMPARISON OF AVERAGE YEAR TO YEAR CHANGES IN TOTAL DEPOSITS DURING TWO PERIODS OF TIME
(Deviations averaged without regard to sign)

		Percentage reserve cty national banks	Percentage country national banks
Bank deposits	1915–1921	25.6	27.1
	1922–1927	9.0	9.9
Demand deposits	1915–1921	15.7	15.4
	1922–1927	5.7	5.4
Time deposits	1915–1921	16.5	13.1
	1922–1927	8.9	6.0
Total deposits	1915–1921	17.9	14.2
	1922–1927	6.5	5.2

SHORT TIME CHANGES

Let us now turn to the shorter time changes in deposits. It has not been possible to obtain data from which changes during precisely similar periods could be analyzed. Taking three reports of the state and national banks per year, however, 37 changes in the deposits of each system have been examined, these changes covering the period, 1915 to 1927, inclusive. The periods separating the reports, or the time elapsing while these changes took place, vary from two to six months.

Average Changes in Total Deposits

Table IX shows the average extent of these short time changes in total deposits during the two periods, 1918 to 1927, and 1915 to 1927. The same order of variability is found among the different groups of banks as obtained in connection with the year to year changes in average deposits. Here also the deposits of the reserve city national banks were subject to the greatest average changes; those of the savings banks had the least average changes.

Average Changes in Various Types of Deposits

When the variability of the different types of deposits is studied, it appears that the character of the deposits has largely determined the changes taking place in total deposits. The United States government deposits and the bank deposits showed much

TABLE IX. AVERAGE SHORT TIME CHANGES IN TOTAL DEPOSITS
(Deviations averaged without regard to sign)

	Percentage 1918–1927	Percentage 1915–1927
Reserve city national banks	10.8	14.8
Country national banks	6.5	8.1
State banks	4.8	—
Savings banks	3.8	—
All state chartered institutions	4.1	4.7

greater average changes than the demand deposits and the time deposits. In the country national banks, however, changes in the demand deposits were also much greater than those in the time deposits. Since the reserve city banks have had a much larger proportion of their deposits in the form of United States government accounts and bank accounts, the average changes in their total deposits have been greater than those of the country national banks. This comparison of change in deposits is shown in table X. The state banks in which these active accounts have been of comparatively small importance had an average change of only 4.7 percent in their total deposits.

Average Positive and Negative Changes in Deposits

As was found in studying the year-to-year changes, it is also true that the average decreases during short periods have been considerably smaller than the increases. Table XI presents a comparison of the positive and negative changes in deposits. In the reserve city national banks the average decreases of both the demand deposits and the time deposits were very small, while those in the bank deposits were considerable in extent. The country national banks also had very small average changes in their time deposits, but the demand accounts were subject to much greater change than those of the reserve city banks. Remembering that it is the decreases of the deposits that are the source of difficulty to bankers, it does not appear that the average decreases in total deposits of 10.8 percent in the reserve city banks and 6.1 percent in the country national banks should have caused the banks much trouble.

Number of Negative Changes in Deposits

The decreases came with much greater relative frequency dur-

TABLE X. AVERAGE SHORT TIME CHANGES IN VARIOUS TYPES OF DEPOSITS 1915 TO 1927, INCLUSIVE
(Deviations averaged without regard to sign)

	Percentage reserve city national banks	Percentage country national banks
United States government deposits	58.6	29.6
Bank deposits	28.6	25.2
Demand deposits	6.8	12.2
Time deposits	5.0	4.2
Total deposits	14.8	8.1

TABLE XI. AVERAGE POSITIVE AND NEGATIVE SHORT TIME CHANGES IN VARIOUS TYPES OF DEPOSITS 1915 TO 1927, INCLUSIVE

	Reserve city national banks		Country national banks	
	Percentage average positive changes	Percentage average negative changes	Percentage average positive changes	Percentage average negative changes
Bank deposits	37.8	20.8	36.5	17.6
Demand deposits	7.9	5.0	14.1	10.0
Time deposits	5.5	2.3	5.3	2.7
Total deposits	18.9	10.8	10.4	6.1

ing short periods of time, however, than in average deposits from year to year. As will be noted in table XII, the total deposits of reserve city banks increased 18 times and decreased 19 times, while those of the country national banks increased 17 times and decreased 20 times. Of the various types of deposits, the bank accounts decreased most often, while the smallest number of negative changes occurred in the time accounts. It is thus not surprising to find that the state institutions, which had the greatest relative proportions of time deposits, had 19 increases and only 18 decreases.

TABLE XII. NUMBER OF POSITIVE AND NEGATIVE SHORT TIME CHANGES IN VARIOUS TYPES OF DEPOSITS, 1915 TO 1927, INCLUSIVE

	Reserve city national banks		Country national banks	
	Number of positive changes	Number of negative changes	Number of positive changes	Number of negative changes
Bank deposits	17	20	15	22
Demand deposits	22	15	18	19
Time deposits	31	6	21	16
Total deposits	18	19	17	20

Greatest Single Negative Changes in Deposits

Since banks have to be fortified against the greatest single changes to which they are subject and not merely average changes, it will be well to note the extent of the greatest single decreases in the various types of deposits. As shown in table XIII, both the bank deposits and demand deposits on occasions have been subject to wide swings downward. The greatest single decrease in the time deposits of both groups of banks, however, was small. But the total deposits have had a maximum single decrease of 26.5 percent in the reserve city banks and 19.7 percent

TABLE XIII. GREATEST SINGLE SHORT TIME DECREASE IN VARIOUS TYPES OF DEPOSITS, 1915 TO 1927, INCLUSIVE

	Percentage reserve city national banks	Percentage country national banks
Bank deposits	46.7	43.8
Demand deposits	16.8	30.5
Time deposits	3.9	6.0
Total deposits	26.5	19.7

TABLE XIV. COMPARISON OF AVERAGE SHORT TIME CHANGES IN VARIOUS TYPES OF DEPOSITS IN TWO PERIODS OF TIME
(Deviations averaged without regard to sign)

		Percentage reserve city national banks	Percentage country national banks
Bank deposits	1915–1921	41.1	36.8
	1922–1927	13.8	11.5
Demand deposits	1915–1921	8.1	17.2
	1922–1927	5.2	5.8
Time deposits	1915–1921	6.1	5.4
	1922–1927	3.7	2.8
Total deposits	1915–1921	21.1	12.0
	1922–1927	7.4	3.5

in the country national banks. In the state institutions, the maximum decrease was only 9.4 percent.

Comparison of Changes in Deposits Before and After January 1, 1922

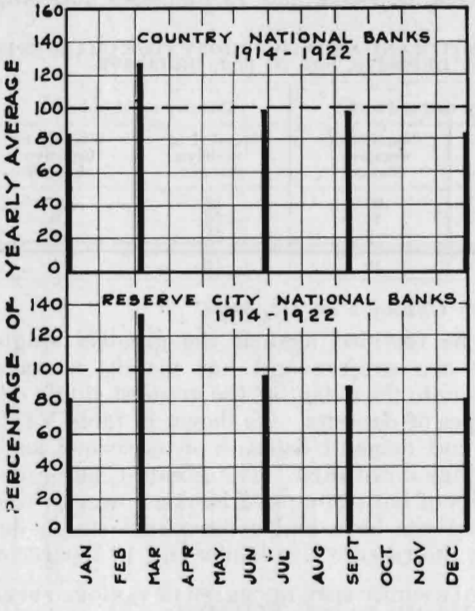

Fig. 17. Seasonal variations of bank deposits.

Comparison of the war and post-war periods with the years following 1921 has been made in table XIV. Every type of deposit account in both the reserve city and country national banks was subject to much greater change from 1915 to 1921 than in the period, 1922 to 1927. Consequently the total deposits of both groups—and it is true also of the state institutions—have been much more stable since 1921, the greatest single changes as well as the greatest average changes being recorded in the years from 1915 to 1921.

SEASONAL CHANGES IN DEPOSITS

When considering the effects of changes in the deposits, it is of first importance to know whether the changes have been anticipated by bankers or whether they have come unexpectediy. If

forewarned, bankers can prepare themselves, but changes that descend suddenly and without warning are likely to put the banks in severe straits.

How accurately bankers have been able to predict the year-to-year changes in average deposits is an open question. There is reason for believing, however, that the direction and even the extent of most of the short time changes have been anticipated. Bankers have been able to predict these short time changes with a fairly high degree of accuracy because the deposits are subject to a distinct seasonal swing.

In computing the indexes used in measuring the seasonal tendencies of deposits, use has been made of the reports of the Comptroller of the Currency and data supplied by about 20 individual banks. Figures on the state chartered banks were not adaptable to this purpose. There was not precise regularity in the dates at which the reports of the national banks were rendered from year to year, but the irregularity was not sufficient to vitiate the results significantly.

Figure 17 shows the seasonal trends in the bank acounts of country national banks and reserve city national banks. These accounts have risen rapidly in volume from the first of the year to early in March. From this point they have declined to a low point at about the end of the year.

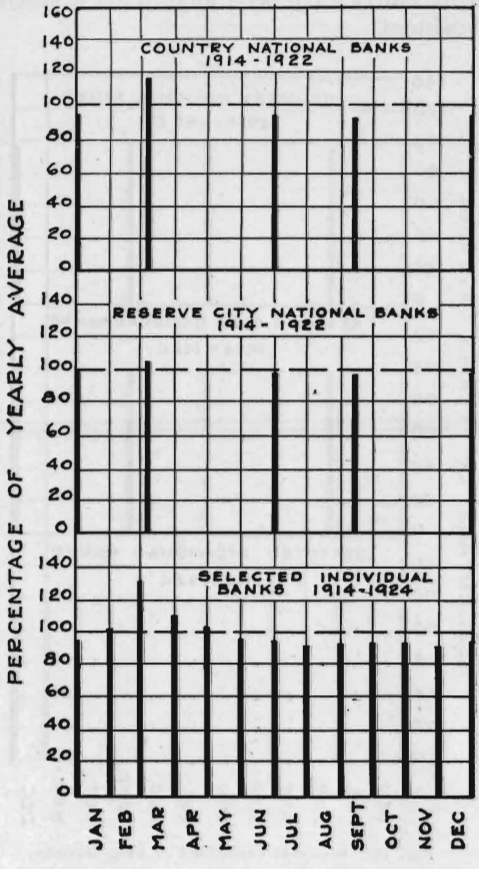

Fig. 18. Seasonal variations of demand deposits.

Figure 18 shows the seasonal trends of demand deposits in the national banks and bank and demand deposits combined in the group of individual banks that were studied. The direction of

the trends in all three groups appear virtually the same, but the country banks and the selected individual banks show much greater changes than those found in the reserve city banks. Since the individual banks were all located in comparatively small towns, while banks in many cities of considerable size are included in the group designated "country national banks," it seems likely that the individual banks reflect country bank practice most accurately. The seasonal trends of demand deposits in the country banks are caused largely by the seasonality of agriculture. Reserve city banks, altho showing a slight seasonality of the same direction as that found in the country institution, apparently have been able to get a much better diversification of business.

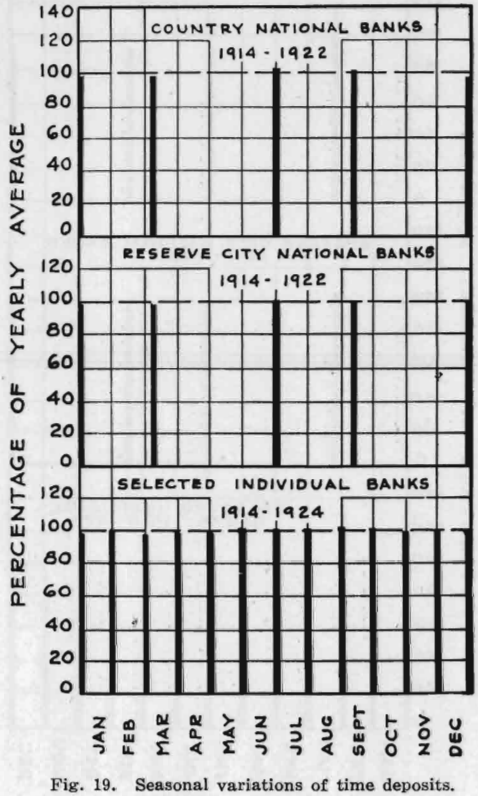

Fig. 19. Seasonal variations of time deposits.

Time deposits, as shown in fig. 19, are little affected by the seasons. A slight seasonal decline is shown from the first of the year to early in March, and from that point there is a slight increase to midsummer, followed by another decrease to the end of the year. But these changes are so small that it is doubtful if they have any real significance.

The seasonal trends of total deposits appear in fig. 20. Total deposits in the reserve city national banks have been subject to the greatest seasonal changes and those in the group of individual banks to the least changes. This leads to the conclusion that the seasonality shown to total deposits has been determined largely by their character. Thus the greater seasonality of total deposits in the reserve city banks seems closely related to the fact that they have had the greatest proportions of demand and bank accounts, and the low degree of seasonality found in the total deposits of individual banks has been caused by the high proportion of time accounts.

Since individual banks have differed materially in the constitution of their deposits, there have been considerable differences in the seasonality of their total deposits. A measure of these differences in a few banks is given in fig. 21. This figure furthermore shows that the force of seasonal influences has not been the same at all times. The curve marked "high values" shows the greatest relatives computed for any of the group on the various dates. The lowest relatives computed for any of the group are designated low "values," and the middle curve shows the median values. Altho banks differ widely in the extent of their seasonal changes, the general direction is nearly the same in all. Only two major discrepancies are shown, these occurring in the curve marked "low values" about the middle of 1916 and early in 1920. The first discrepancy was caused by the merger of two banks and does not mark a genuine departure from the usual seasonal trend. The second, however, is a real discrepancy.

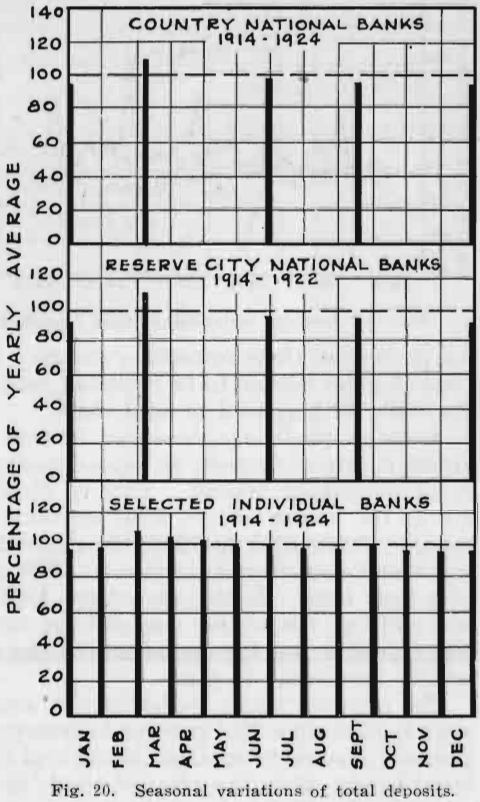

Fig. 20. Seasonal variations of total deposits.

RELATION OF CHANGES IN DEPOSITS TO LENDING PRACTICE

Had average conditions always prevailed, banks would have had little need for a large proportion of short term loans. When there were reductions in the average deposits from year to year, they averaged only 11.7 percent in the reserve city national banks, 8.7 percent in country national banks and 5.4 percent in the state chartered banks. Usually the trend of average deposits was upward, as only three of the twelve year-to-year changes recorded for reserve city banks were negative, and there were only four negative changes in country national banks and five negative changes in the state chartered banks. The short time reductions in the total deposits averaged only 10.8 percent, 6.1 percent and

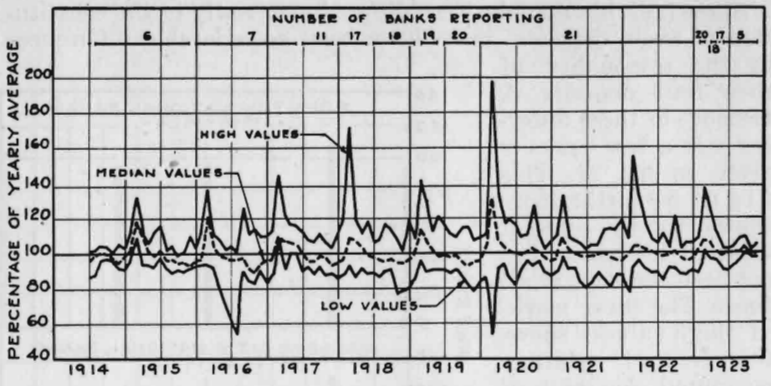

Fig. 21. Seasonal variations of total deposits in selected individual banks.

3.2 percent in these respective groups. Furthermore, these short time changes tended to be repeated year after year so that bankers could be prepared to meet them.

Average conditions, however, seldom if ever prevailed. The actual course of deposits on some occasions has departed abruptly from prevailing trends. This is illustrated in fig. 22, which marks the course of the total deposits of reserve city national banks. From 1915 to 1920, the general trend was upward, but this trend was sharply broken in 1920 and was not resumed until a year later. Each year except 1924, when the March figure was omitted, the winter rise and the summer decline in deposits was repeated, but the magnitude of the seasonal changes differed widely from year to year.

The greatest single reductions in average total deposits from year to year were 22.4 percent in reserve city national banks, 22.1 percent in country national banks and 15.4 percent in state chartered banks, while the greatest single short time reductions were, respectively, 26.5 percent, 19.7 percent and 9.4 percent. Many individual banks undoubtedly have had reductions considerably

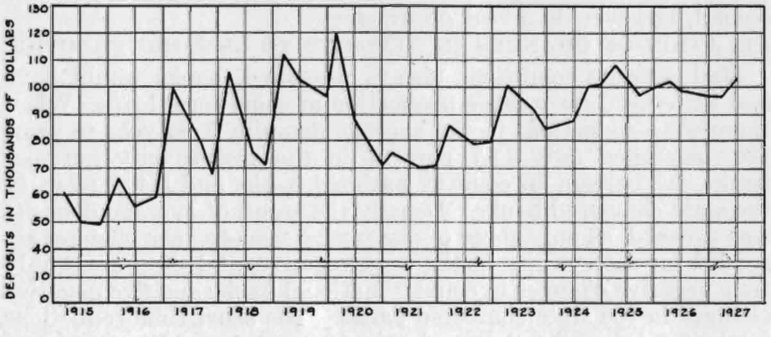

Fig. 22. Total deposits of reserve city national banks.

greater than these. Had collections from loans supplied the funds required to meet these maximum reductions in deposits, there would be positive evidence that the proportion of short time loans was considerable. Before reaching a conclusion on this point, however, let us see how the banks actually have provided for their needs.

III. EXPERIENCE IN MEETING DEPOSIT WITHDRAWALS

When the deposits of a bank are reduced, the bank may provide the required funds by liquidating any of its assets or by increasing any of its liabilities other than the deposits. These sources, however, are not equally productive of funds. In studying their comparative importance, it will be well to differentiate between short time reductions in deposits and year-to-year changes in average deposits.

YEAR-TO-YEAR REDUCTIONS IN DEPOSITS

Prior to the middle of 1918, the reports of the state supervisory officer were not classified in such manner as to separate some of the more important assets. The following figures, therefore, have reference to the period, 1918 to 1927, inclusive. In that period, reductions in the average total deposits occurred three times in the reserve city national banks, four times in the country national banks and five times in the state chartered banks.

Table XV shows what percentage of the total amount of funds needed to pay depositors during these reductions was supplied by each of the assets and liabilities. It will be observed that in all of the three groups of banks the most important sources of funds were the loans and discounts, the cash resources, the securities and the bills payable and rediscounts. Only negligible amounts were supplied by the other assets and liabilities. Most of the funds required by the country national banks and state chartered institutions were supplied by liquidating the loans, but the reserve city banks obtained greater amounts by borrowing than by liquidating loans. All three groups drew upon their cash resources and liquidated securities.

Number of Times Each Source was Used

Not all of these sources were employed, however, on each occasion when deposits were reduced. Table XVI shows the number of times each source of funds was employed. Both the country national banks and the state chartered institutions liquidated loans on all occasions when the deposits were reduced, and both borrowed from other banks on one occasion. Cash resources were reduced three out of the four times in country national banks and four out of the five times in state chartered banks. Securities were liquidated once in the country national banks and three times in the state chartered institutions. The reserve city national banks liquidated loans on only two of the three occasions

TABLE XV. PERCENTAGE OF TOTAL AMOUNT OF FUNDS RAISED FROM EACH SOURCE WHEN AVERAGE DEPOSITS HAVE DECREASED

	Percentage reserve city national banks	Percentage country national banks	Percentage State chartered institutions
Reductions in:			
Loans and discounts	26.0	61.8	68.0*
Cash resources	23.7	21.1	12.6
Securities	15.0	8.7	9.0**
Banking house	——	.7	.3
Other real estate	——	1.4	——
Other assets	.4	.9	.7
Increases in:			
Capital investment	2.2	——	1.7
Circulating notes	1.0	——	——
Bills payable and rediscounts	30.9	5.4	6.8
Other liabilities	.8	——	.9
	100.0	100.0	100.0

*Includes other stocks and bonds.
**United States securities exclusively.

of reductions in deposits. They borrowed on one occasion and reduced the cash resources and liquidated securities on all three occasions.

Average Percentage of Funds Supplied by Each Source

When used to provide funds for meeting deposit withdrawals, the loans had a greater average importance than is indicated in table XV. This is brought out in table XVII, where the average percentage of the amount of funds raised is computed for the occasions when each source was used. The loans and discounts of reserve city national banks, when liquidated at all, supplied an average of 63.7 percent of the money needed. Loans and discounts of the country national banks supplied 78.1 percent and those of the state chartered institutions provided 79.4 percent. The other sources, on the average, contributed only moderate proportions of the funds raised, except in the case of the bills payable and rediscounts of reserve city national banks, which supplied 60.6 percent of the funds on the one occasion when this source was used.

TABLE XVI. NUMBER OF TIMES MORE IMPORTANT SOURCES OF FUNDS WERE USED TO PROVIDE FUNDS TO MEET YEAR-TO-YEAR REDUCTIONS IN AVERAGE TOTAL DEPOSITS

	Reserve city national banks	Country national banks	State chartered institutions
Loans and discounts	2	4	5*
Cash resources	3	3	4
Securities	3	1	3**
Bills payable and rediscounts	1	1	1
Number of reductions in deposits	3	4	5

*Includes "other stocks and bonds."
**United States securities only.

TABLE XVII. AVERAGE PERCENTAGE OF FUNDS PROVIDED BY MORE IMPORTANT SOURCES TO MEET YEAR-TO-YEAR REDUCTIONS IN AVERAGE TOTAL DEPOSITS

	Percentage reserve city national banks	Percentage country national banks	Percentage state chartered institutions
Loans and discounts	63.7	78.1	79.4*
Cash resources	17.8	16.1	11.0
Securities	16.4	16.5	9.8**
Bills payable and rediscounts	60.6	10.4	15.8

*Includes "other stocks and bonds."
**United States securities only.

Average Reduction in Loans

Despite the large average amount of funds raised by liquidating loans during these year-to-year reductions in total deposits, the average reductions taking place in the loans were relatively small. This is shown in table XVIII. The loans of the reserve city national banks which, on the average, supplied 63.7 percent of the funds needed to meet deposit withdrawals, were liquidated to an average extent of only 10.4 percent. The average liquidation of loans in the country national banks and state chartered institutions was only 9 percent and 5.6 percent, respectively, altho this amount of liquidation sufficed to produce nearly 80 percent of the funds needed. From the foregoing it is clear that altho the loans, on the average, have been the chief source of funds, it has not been necessary to collect a large proportion of the loans in order to satisfy depositors' demands.

Experience During Greatest Single Reduction in Average Deposits

From 1920 to 1921 all three groups of banks suffered their heaviest single loss in average total deposits since 1918. As shown in table XIX, the percentage loss of deposits was 22.4 percent in the reserve city national banks, 22.1 percent in the country banks and 15.4 percent in the state chartered banks. Reserve city banks were able to meet this decline without increasing their borrowings from other banks. To do so they reduced their loans nearly 16 percent, their securities nearly 28 percent and allowed their cash resources to be reduced 26.6 percent. Both the country national banks and the state chartered banks, however, increased the volume of funds borrowed from other banks, the country banks by 16.3 percent, and the state chartered banks by 30.3 percent.

TABLE XVIII. AVERAGE REDUCTIONS IN LOANS WHEN USED TO PROVIDE FUNDS TO MEET YEAR-TO-YEAR REDUCTIONS IN AVERAGE TOTAL DEPOSITS

	Percentage reserve city national banks	Percentage country national banks	Percentage state chartered institutions
Loans and discounts	10.4	9.0	5.6*
Average reductions of deposits	11.7	8.7	5.4

*Includes "other stocks and bonds."

Country banks reduced their loans only 9.2 percent while the state chartered banks reduced theirs only 6.3 percent. Both the country national banks and state chartered banks liquidated a substantial proportion of their securities and allowed their cash resources to be decreased considerably.

TABLE XIX. CHANGES IN LOANS, CASH AND BILLS PAYABLE AND REDISCOUNTS DURING GREATEST SINGLE YEAR-TO-YEAR REDUCTION IN AVERAGE DEPOSITS SINCE 1918.

	Time of reduction in deposits	Percentage reduction of deposits	Percentage reduction of loans	Percentage reduction of cash	Percentage reduction of securities	Percentage increase of bills payable and rediscounts
Reserve city nat'l. banks	1920-1921	22.4	15.9	26.6	27.9	——
Country nat'l banks	1920-1921	22.1	9.2	37.2	17.3	16.3
State chartered banks	1920-1921	15.4	6.3	23.7	30.7	30.3

The foregoing is the history of the greatest reduction in average deposits of Iowa banks in many years. The reduction created an unusual desire on the part of bankers to liquidate their loans, but since prices had fallen and business conditions were in a turmoil, it was unusually difficult to collect the loans. When it is remembered that the banks had an entire year in which to adjust themselves to those declines in deposits, the relatively small percentage reductions in loans do not indicate that the banks reduced their loans very rapidly. The figures do not reveal for certain whether it was not possible or merely not feasible to reduce the loans more rapidly. Bearing in mind the bankers' aversion to borrowing and low cash reserves, however, there is a strong probability that the country national banks and state chartered banks, at least, did not find it possible to make greater reductions in their loans.

SHORT TIME REDUCTIONS IN DEPOSITS

Taking two reports in 1918 and three reports in each of the years following, total deposits have shown reductions 12 times in reserve city national banks, 15 times in country national banks and 17 times in the state chartered institutions. Table XX shows what percentage of the total amount of funds needed to pay depositors during these reductions was supplied by each of the assets and liabilities. The most important sources of funds have been the loans and discounts, the cash resources, the securities and the bills payable and rediscounts. Of the total amount of funds raised during all these deposit withdrawals, the greatest amount was provided by the bills payable and rediscounts in reserve city banks, the available cash resources in country banks and the loans and discounts in the state chartered institutions.

Number of Times Each Source was Used

All of these sources, however, were not used on every occasion when there were deposit withdrawals. Table XXI shows the

TABLE XX. PERCENTAGES OF TOTAL AMOUNTS OF FUNDS RAISED FROM EACH SOURCE ON ALL OCCASIONS WHEN DEPOSITS HAVE DECREASED DURING PERIODS RANGING FROM TWO TO SIX MONTHS

	Percentage reserve city national banks	Percentage country national banks	Percentage state chartered institutions
Reductions in:			
Loans and discounts	19.3	27.4	39.6*
Cash resources	28.7	35.0	26.0
Securities	15.3	10.9	12.0**
Banking house	.3	.4	.3
Other real estate	.2	.7	.5
Other assets	.3	.8	1.4
Increases in:			
Capital investments	.7	1.2	2.4
Circulating notes	.5	.2	—
Bills payable and rediscounts	33.4	22.0	15.9
Other liabilities	1.3	1.4	1.9

*Includes other stocks and bonds.
**United States securities exclusively.

number of times each source was called upon. The reserve city and country national banks liquidated loans on precisely two-thirds of these occasions, while the proportion is slightly higher in the state chartered institutions. Cash resources were called upon by each system in about three-fourths of the deposit withdrawals, and securities were liquidated on about two-thirds of the occasions. All three systems of banks borrowed money less often than they liquidated assets.

Average Percentage of Funds Supplied by Each Source

Table XXII shows the average percentages of the funds provided during these periods of falling deposits, by each of the more important sources of funds on the occasions when they were utilized. Classified in this way, the loans and discounts appear to have been the most important source of funds in each of the groups of banks. The least important source was the liquidation of securities. Each of the systems, however, on the average, made heavy drafts on its cash resources and borrowed considerable amounts from other banks.

TABLE XXI. NUMBER OF TIMES MORE IMPORTANT SOURCES OF FUNDS WERE USED TO PROVIDE FUNDS TO MEET SHORT TIME REDUCTIONS IN DEPOSITS

	Reserve city national banks	Country national banks	State chartered institutions
Loans and discounts	8	10	14*
Cash resources	9	12	13
Securities	8	8	12**
Bills payable and rediscounts	7	6	7
Number of reductions in deposits	12	15	17

*Includes "other stocks and bonds."
**United States securities only.

TABLE XXII. AVERAGE PERCENTAGES OF FUNDS PROVIDED BY MORE IMPORTANT SOURCES TO MEET SHORT TIME REDUCTIONS IN DEPOSITS

	Reserve city national banks	Country national banks	State chartered institutions
Loans and discounts	40.1	60.3	52.5*
Cash resources	34.3	34.2	33.8
Securities	27.1	23.5	17.4**
Bills payable and rediscounts	33.4	37.6	26.8

*Includes "other stocks and bonds."
**United States securities only.

Average Reductions in Loans

The average percentage reductions in the loans and discounts were small in all groups of banks. As shown in table XXIII, in the reserve city banks they amounted to 6.2 percent, in the country banks to 4.3 percent and in the state chartered banks to only 2.2 percent. These reductions were less in each case than the percentage reductions in deposits which gave rise to them. Altho when called upon to provide funds the loans have supplied a considerable part of the funds needed, it has not been necessary to liquidate any considerable portions of the loans in any of the three systems.

Experience During Greatest Single Reduction in Deposits

Like the year-to-year changes in average deposits, the greatest single short time reductions occurred between the beginning of 1920 and the end of 1921. As shown in table XXIV, the reserve city national banks suffered their greatest single loss of deposits between Feb. 28 and June 30, 1920, the decrease amounting to 26.5 percent. The greatest single decrease in the country national banks occurred at the same time and amounted to 19.7 percent. In the state chartered banks, however, the greatest single decrease came between June 30 and December 31, 1920. It amounted to only 9.1 percent.

In meeting these greatest single short time reductions in their deposits, the banks obtained most of the funds needed from their cash resources and by borrowing from other banks. The reserve city national banks and country national banks actually increased their loans, while the state chartered banks diminished theirs by only 1.1 percent. All three groups of banks suffered heavy drafts upon their available cash resources and tremendously increased

TABLE XXIII. AVERAGE PERCENTAGE REDUCTION IN LOANS WHEN SHORT TIME CHANGES IN DEPOSITS HAVE OCCURRED

	Percentage reserve city national banks	Percentage country national banks	Percentage state chartered institutions
Loans and discounts	6.2	4.3	2.2*
Average reduction of deposits	9.6	5.4	2.8

*Includes "other stocks and bonds."

the amount of their borrowing at other banks. The country national banks liquidated a small portion of their securities. These figures also do not reveal whether the banks were unable to reduce their loans or whether they merely regarded such action as unwise. The fact of real importance in connection with this study, however, is that in this greatest single short time reduction in deposits it was not necessary to make any material reductions in the loans.

During both the average year-to-year and short time reductions in deposits, the proportions of the total amounts of funds needed which were supplied by the loans appear to have been more closely related to the extent of the deposit reductions than to the extent of the liquidations of loans. This comparison is presented in tables XXV and XXVI. Table XXV shows that altho the reserve city banks reduced their loans by the greatest average percentages, the funds derived from this source were less in relation to the total amount of funds needed than was true with either the country national banks or the state chartered institutions. On the other hand, altho the state chartered institutions, on the average, reduced their loans by the least relative amounts, their collections from loans supplied a greater proportion of the funds

TABLE XXIV. CHANGES IN LOANS, CASH AND BILLS PAYABLE AND REDISCOUNTS DURING GREATEST SINGLE SHORT TIME REDUCTION IN TOTAL DEPOSITS SINCE 1918

	Time of reduction in deposits	Percentage reduction in deposits	Percentage reduction in loans	Percentage reduction of cash	Percentage reduction of securities	Percentage increase of bills payable and rediscounts
Reserve city Nat'l. banks	2-28-1920 to 6-30-1920	26.5	—	33.2	—	286.8
Country Nat'l. banks	2-28-1920 to 6-30-1920	19.7	—	47.0	4.5	111.9
State chartered banks	6-30-1920 to 12-31-1920	9.1	1.1	16.0	—	80.4

needed than was true with either of the other groups of banks. Country national banks occupied an intermediate position in this respect.

The adequacy of collections from loans in meeting short time reductions of deposits was less closely related to the extent of the deposit withdrawals than was the case with the average year-to-year reductions of deposits. Table XXVI shows, however, that the reserve city national banks had the greatest average reduction in their loans, but found their loan collections less in relation to the total amount of funds needed than either of the other groups of banks. The state chartered institutions, which had the least average reductions in their loans, again found the funds provided from this source greater in relation to the total amount of funds needed than the reserve city banks. The country national banks

TABLE XXV. COMPARISON OF THE AVERAGE ADEQUACY OF LOAN COLLECTIONS IN DIFFERENT GROUPS OF BANKS DURING YEAR-TO-YEAR REDUCTIONS IN AVERAGE DEPOSITS

	Percentage reserve city national banks	Percentage country national banks	Percentage state chartered institutions
Average percentage reduction in deposits	11.7	8.7	5.4
Average percentage reduction in loans	10.4	9.0	5.6*
Average percentage of all funds supplied by loans	63.7	78.1	79.4

*Includes "other stocks and bonds."

had greater average reductions in their loans than the state chartered institutions and also collected a greater proportion of the total amount of funds needed than the state chartered banks.

The data that have been presented in this section show that, on the average, the percentage reductions in deposits have been small and that it has not been necessary to make large percentage reductions in the loans in order to meet these deposit withdrawals. During the greatest single short time reductions in deposits, none of the three groups of banks made any material reduction whatever in its loans. During the greatest single year-to-year reductions in average deposits, only the reserve city banks reduced their loans enough to save them from borrowing from other institutions. The experience of Iowa banks, as outlined above, shows clearly that during neither average deposit reductions nor the greatest single reductions has it been necessary for the banks to rely exclusively upon their loans for the funds needed to pay depositors. Nothing in this experience indicates that banks have had to confine their loans to those of short maturities in order to meet the demands of depositors.

IV. MATURITIES OF LOANS

Very little information on the loans of Iowa banks is available in published or readily accessible form. Table XXVII, however, contains a classification of country national bank loans in Iowa which shows the proportions of the secured and unsecured loans. Before 1922 about 80 percent of the country national banks' loans

TABLE XXVI. COMPARISON OF THE AVERAGE ADEQUACY OF LOAN COLLECTIONS IN DIFFERENT GROUPS OF BANKS DURING SHORT TIME REDUCTIONS IN DEPOSITS

	Percentage reserve city national banks	Percentage country national banks	Percentage state chartered institutions
Average percentage reductions in deposits	9.6	5.4	2.8
Average percentage reductions in loans	6.2	4.3	2.2
Average percentage of all funds supplied by loans	40.1	60.3	52.5

were unsecured. When secured, stocks, bonds and chattel mortgages were the chief forms of collateral. The amount of real estate mortgages was small. Beginning in 1922, however, the proportion of unsecured loans grew steadily smaller until in 1927 it was only 62.4 percent. This period brought a substantial increase in the proportion of farm mortgages.

TABLE XXVII. UNSECURED AND SECURED LOANS IN COUNTRY NATIONAL BANKS. (PERCENTAGES OF TOTAL LOANS OUTSTANDING)

	Percentage unsecured loans	Loans secured by				Percentage acceptances owned	Percentage total of secured loans
		Percentage stocks and bonds	Percentage other personal property	Percentage farm real estate	Percentage other real estate		
June 30, 1914	80.7		19.3				19.3
June 30, 1915	73.7	6.4	15.4	4.5			26.3
June 30, 1916	76.9	7.4	11.2	4.5		.1	23.0
June 30, 1917	76.4	6.9	11.7	5.0		.1	23.5
June 30, 1918	78.4	6.8	10.3	4.3		.1	21.5
June 30, 1919	79.6	7.3	9.1	3.9		.1	20.3
June 30, 1920	82.7	6.3	7.7	3.2		.1	17.2
June 30, 1921	80.5	5.3	9.2	4.9		.1	19.4
June 30, 1922	75.1	5.4	10.5	7.4	1.6	.1	24.8
June 30, 1923	72.3	6.0	10.9	8.5	1.8	.4	27.3
June 30, 1924	70.1	5.4	12.2	9.7	2.2	.3	29.6
June 30, 1925	67.2	6.5	12.1	11.5	2.5	.2	33.6
June 30, 1926	65.7	7.1	12.9	11.2	2.9	.2	34.1
June 30, 1927	62.4	8.9	14.5	10.7	3.2	.3	37.3

Computed from data given in reports of the Comptroller of the Currency.

The classification in table XXVII throws little light on the relative proportions of the short term and long term loans. There is no reason to assume that the unsecured loans and the loans secured by stocks, bonds and other personal property were exclusively of a short term character. But since the national banking law has permitted mortgage loans to be made for one year on city real estate and five years of farm land, it is a fair inference that the real estate mortgage loans were of a relatively long-term character. The proportion of these loans, as shown in table XXVII, varied from 4.5 percent of the total loans in 1915 to 13.9 percent in 1927.

No similar data are available for the reserve city national banks or the state chartered banks.

The only data bearing specifically on the terms of credit extended by banks were obtained from 20 institutions whose books the author was permitted to examine. It was not possible to classify the maturities of the outstanding loans on different dates owing to the fact that the records of the banks did not contain this information. The records did contain, however, the total amount of the outstanding loans on the first of each month since 1914 and the amount of daily collections of loans. The average term of credit for each bank was computed, therefore, by comparing the average amount of the loan collections per month and the average volume of the outstanding loans.

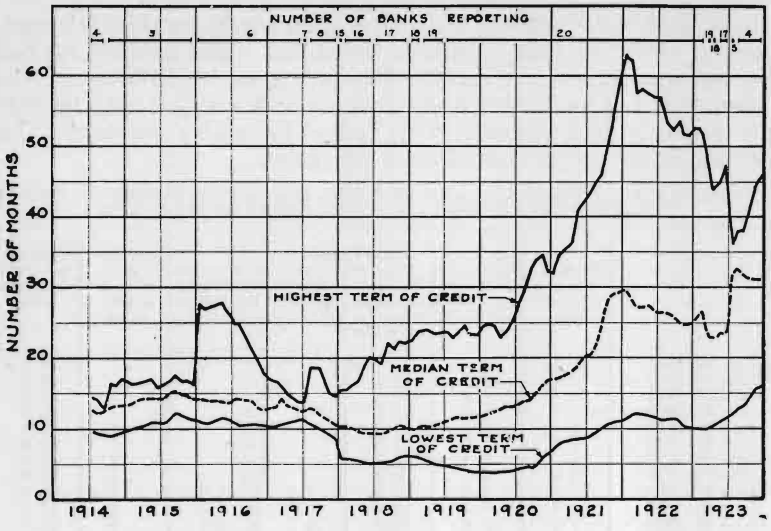

Fig. 23. Average terms of credit for a selected group of banks.

More specifically, the method was as follows: The 12 months moving average of outstanding loans in each bank was divided by the 12 months moving average of loan payments per month. This division produced a series of numbers each of which reflected the weighted average time in months elapsing between the making and payment of the loans collected by a bank during the six months preceding and the six months following the dates on which the numbers were entered. Not all of the banks could supply records covering the entire period, 1914 to 1923, inclusive. In making up fig. 23, consequently, the number of banks for which a term of credit was computed at each date is designated.

The terms "maturities" and "terms of credit" as used in this section refer to the time elapsing before loans were actually paid. In making out the notes representing loans, bankers usually have placed a nominal maturity of six months or less on the paper, except in the case of real estate mortgage loans, which often have borne nominal maturities of from one to five years. This practice of dating notes to fall due before they could be paid and later renewing them has been so universal that the paper of each of the banks studied had nominal maturities averaging almost precisely six months. In making this study, however, renewals were excluded so that the terms of credit presented refer to the actual time before the notes were paid and not to the time stated on the faces of the notes.

Figure 23 shows the highest, the median and the lowest average term of credit computed on each date for this special group of 20 banks. As might be expected, there was much variation among

the banks. Not only have the liabilities of banks varied greatly in constitution, as has already been seen, but since the banks were located in different areas of the state, the demands of borrowers were not identical. Consequently, the average maturities of the loans differed.

Because it represents the average condition in the whole group of banks, one of the most important features of fig. 23 is the median period that expired before the loans were paid. Following the curve marked "median term of credit," it is clear that in the years before war influences were dominant, the average period for which credit was extended approximated one year. During the war the turnover of bank loans quickened somewhat. The effects of the recession and long period of depression which followed the early months of 1920 are clearly shown by the rising average term of credit. Bank loans turned very slowly in this period.

As an aid in the interpretation of these figures, certain biases that result from the method of computation should be noted. If a bank were to remain in a static condition for a considerable period of time, these biases would not exist. For example, if the outstanding loans of a bank were to remain constant over a period of a year or two at $300,000 and each month the amount of collections from loans was $30,000, the average period elapsing between the making and payment of the loans would be approximately 10 months. When the outstanding loans are rising rapidly, however, the quotient obtained by dividing the amount of the outstanding loans by the amount of the loan collections is greater than the average actual period of credit. This bias results from the fact that the loans were made at some time in the past, but collected at a later date when the volume of the outstanding loans had changed. In a similar way, the figures indicate a term of credit less than that actually existing when the outstanding loans are falling rapidly.

Figure 23, therefore, most nearly approximates the true situation of the banks during the years 1914, 1915 and 1916. Altho the outstanding loans and discounts of the banks were increasing during this period, the rate of increase was very low. But even here, the term of credit computed is doubtless slightly greater than that actually existing. This bias becomes greater during the years 1917, 1918 and 1919, for in those years the loans of the banks were rising rapidly. In the latter part of 1920 and 1921, the term of credit shown in fig. 23 is even less than that which, in fact, would have been the case if the banks were to have maintained their loans and their loan collections constantly at the amounts prevailing at the earlier period.

The figures on the average term of bank advances are subject to the additional criticism that most of them were supplied by insolvent banks. At the time this study was made in 1924, 13 of the 20 banks were in the hands of receivers. Three of the seven

banks which at that time were solvent have failed since 1924. One might infer that coming from this source, the data reflect the conditions that have led to failure, not the conditions of safe and conservative banking There are several answers to this criticism.

First, the only period for which these data reflect existing conditions with a high degree of accuracy is from 1914 to 1916, inclusive, and the history of the banks studied in those years is not the history of insolvent institutions. Few banks failed in Iowa from 1908 to 1918, and there is no reason to assume that the banks included in this study were insolvent at that time. It is a matter of general knowledge that the land speculations, the vast increase in real estate mortgage indebtedness and the decline in prices in 1920 were chiefly responsible for the numerous bank failures of recent years. All of these conditions arose after 1917. It seems reasonable to assume, consequently, that the banks studied were representative, solvent institutions in 1914, 1915 and 1916.

Second, in no part of the period, 1914 to 1923, inclusive, was there a substantial difference between the average term of credit in the whole group of banks and in the four that remained solvent. This comparison is shown in fig. 24. Altho the average term of credit in the solvent banks is slightly below that of the whole group, it is highly improbable that the difference in the years 1920 to 1923, inclusive, was great enough to explain why some of these institutions were forced to close and others maintained their solvency.

Third, most of the banks of this group which failed had losses that were great enough to cause their failure. The receivers in charge of 11 of the 13 banks that failed before the summer of 1924 supplied figures showing the amounts of the assets of these banks which were worthless and of doubtful value. The worthless assets varied in individual banks from 3.8 percent to 55.5 percent of the total assets, averaging 27.1 percent in the 11 banks. Doubtful assets varied in amount from 1.4 percent to 25.2 percent of the total assets and averaged 10.5 percent in the 11 banks. Further significance is given to these figures by comparing them with the capital funds of the bank. The worthless assets alone varied from 26.6 percent to more than five times the amount of the capital funds, and averaged more than twice the amount of the capital funds in the whole group of banks.

There is no necessary connection between the turnover and the goodness of bank loans, but at times such a relationship does, in fact, exist. It cannot be doubted, for instance, that the low turnover of bank loans after 1920 was largely because so many of the loans became worthless. The presence of these large amounts of worthless assets gave rise to the term, "frozen assets," used in describing the causes of bank failures.

Available data do not reveal precisely when these losses were incurred. The term of credit, however, rose sharply during 1920

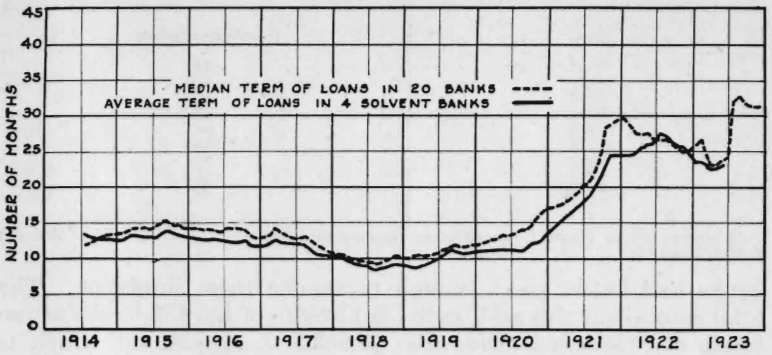

Fig. 24. Average term of credit in selected group of banks and in four solvent banks.

and 1921 to the very high levels that prevailed in later years. Despite this rise, none of the 20 banks failed before 1923. That they should have been able to keep their doors open during the deposit withdrawals of 1920 and during the next two years would seem to prove conclusively that the mere current uncollectibility of their loans was not the cause of failure. Had the slow loans of these banks been good loans, there is a strong probability that the banks would not have failed.

The experience of this small group of individual banks is closely paralleled by the experience of many other failed banks in the state. As shown in Sections II and III of this bulletin the greatest reductions in deposits were in 1920. To meet these withdrawals, the banks relied chiefly on their borrowing facilities, as it was not practicable to reduce their loans materially. The aid received from this source tided them over the years of greatest reserve stress so that few banks failed during 1921 and 1922. By 1923 the need for ready money had become much less acute, yet, as shown in table XXVIII, it was then that failures first became numerous. In the years following 1923, when failures were most numerous, most of the banks of the state were well supplied with ready money.

The receivers in charge of 139 of the first 194 state and savings banks that failed in Iowa after 1920 supplied figures from which the following compilation was made.

1. Total assets were $57,324,500
2. Of this amount
   a. Totally worthless assets were 19,029,100
   b. Assets of doubtful value were 8,526,300
   c. Leaving good assets of 30,769,100

Whether or not one regards the mere slowness of loan collections as a contributing cause, it is beyond doubt that most of these

TABLE XXVIII. NUMBER OF BANK FAILURES IN IOWA*
1921 TO 1929, INCLUSIVE

Year	Number of failures
1921	24
1922	12
1923	35
1924	83
1925	84
1926	135
1927	70
1928	51
1929	34

*Hearings before House Committee on Banking and Currency on H. R. 141, Volume 1 Part 4, Page 411.

banks had losses great enough to render them insolvent. The total capital surplus and undivided profits of the 139 banks whose assets are classified above was $6,553,800, an amount which is only a trifle more than one-third of the worthless assets.

Serious impairment of the capital, moreover, was not merely an occasional, but an almost universal condition among the failed banks. This is strikingly illustrated in table XXIX. Of the 139 banks described above, 115 had their capital funds totally exhausted, and the capital was impaired in 21 banks. Only three had losses less than their surplus and undivided profits.

From the data presented in this section, it appears that the average term of bank advances in 1914, 1915 and 1916 was about one year. The turnover of bank loans became somewhat more rapid from 1917 to 1920, inclusive, but fell to low levels from 1921 to 1923, inclusive. In banks that have remained solvent, the term of credit does not appear to have been materially lower than in those that have failed. Comparatively few banks failed until 1923, which shows that even the insolvent banks continued as going institutions for several years despite the very small amount of collections from their loans. The prevalence of heavy losses among the closed banks strongly suggests that, had their slow loans been well secured, many of them would not have failed.

TABLE XXIX. IMPAIRMENT OF CAPITAL IN STATE INSTITUTIONS

Year	Number reporting receivers estimate of assets	Number reporting losses exceeding capital surplus and undivided profits	Number reporting losses which exceeded surplus and undivided profits but not total capital funds	Number reporting no impairment of capital
1921	1	1	0	0
1922	0	0	0	0
1923	13	12	1	0
1924	53	41	10	2
1925	41	37	4	0
1926	31	24	6	1
Total	139	115	21	3